SONY

3-868-323-**12** (1)

Video Camera Recorder

Operating Instructions

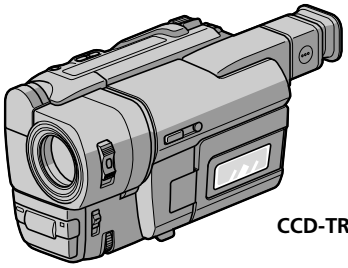
Before operating the unit, please read this manual thoroughly, and retain it for future reference.

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. **CCD-TRV**_____ Model No. **AC-L**_____

Serial No. _____ Serial No. _____



CCD-TRV87

Handycam Vision™

InfoLITHIUM™ L SERIES

video Hi8 XR
CCD-TRV87 Hi 8

video Hi8
CCD-TRV67 Hi 8

Video 8 XR
CCD-TRV17/TRV37/TRV57 8

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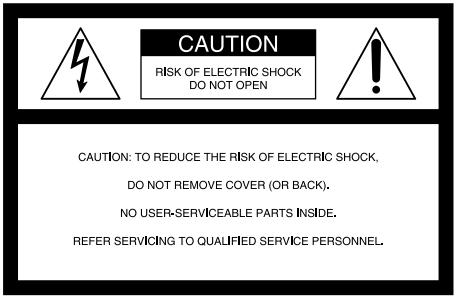
Welcome!

Congratulations on your purchase of this Sony Handycam Vision™ camcorder. With your Handycam Vision, you can capture life's precious moments with superior picture and sound quality. Your Handycam Vision is loaded with advanced features, but at the same time it is very easy to use. You will soon be producing home video that you can enjoy for years to come.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Never expose the battery pack to temperatures above 140 °F (60°C), such as in a car parked in the sun or under direct sunlight.

DISPOSAL OF LITHIUM ION BATTERY.

LITHIUM ION BATTERY. DISPOSE OF PROPERLY.

You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.

Note: In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)
For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution: Do not handle damaged or leaking lithium ion battery.

For customers in the U.S.A.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

For customers in CANADA

CAUTION

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

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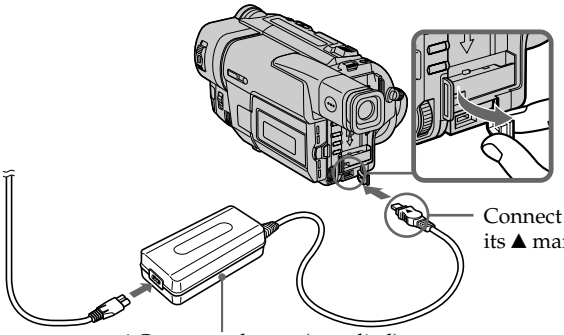
Quick Start Guide

This chapter introduces you to the basic features of your camcorder. See the page in parentheses "( )" for more information.

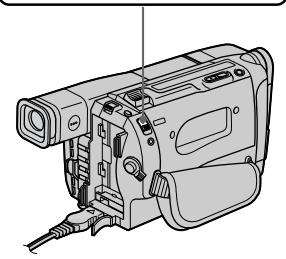
1 Connecting the power cord (p. 14)

Use the battery pack when using your camcorder outdoors (p. 9).

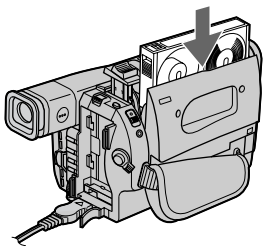


2 Inserting a cassette (p. 15)

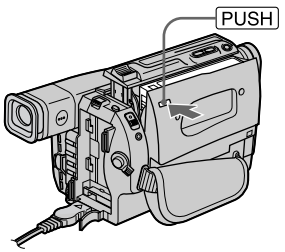
❶ Slide EJECT in the direction of the arrow while pressing the small blue button.



❷ Insert a cassette into the cassette compartment with its window facing out.

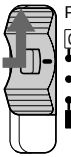


❸ Close the cassette compartment by pressing the PUSH mark on the cassette compartment. The cassette compartment automatically goes down.

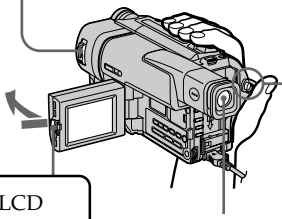


3 Recording a picture (p. 16)

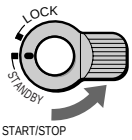
1 Set the POWER switch to CAMERA while pressing the small green button.



2 Open the LCD panel while pressing OPEN.



3 Turn STANDBY to STANDBY. The picture appears on the LCD screen.

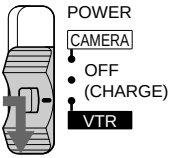


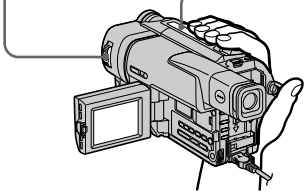
4 Press the red button. Your camcorder starts recording. To stop recording, press the red button again.

Viewfinder
When the LCD panel is closed, use the viewfinder placing your eye against its eyecup. The picture in the viewfinder is black and white.

4 Monitoring the playback picture on the LCD screen (p. 24)

1 Set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) while pressing the small green button.

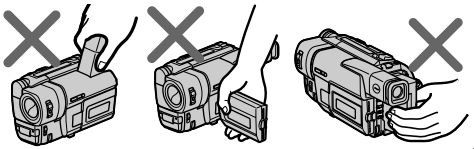




2 Press ◀◀ to rewind the tape.

3 Press ► to start playback.

NOTE
Do not pick up your camcorder by holding the viewfinder, the LCD panel or the battery pack.



Using this manual

The instructions in this manual are for the four models listed in the table below. Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The CCD-TRV87 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV87 only."
As you read through this manual, buttons and settings on your camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
When you carry out an operation, you can hear a beep sound to indicate that the operation is being carried out.

Types of differences

CCD-	TRV17	TRV37	TRV57	TRV67	TRV87
System	8	8	8	Hi8	Hi8
VIDEO/AUDIO IN*	—	—	—	—	●
S VIDEO	—	—	—	●**	●
Digital zoom	80×	200×	360×	360×	360×
Super NightShot	—	—	—	—	●
SteadyShot	—	—	●	●	●
Remote sensor	—	—	●	●	●
SUPER LASER LINK	—	—	—	—	●
Photo mode	—	—	—	—	●
PROGRAM AE	●	●	●	●	●
Low lux mode	—	—	—	—	●
Digital effect	—	—	—	—	●
Fader function	●	●	●	●	●
OVERLAP	—	—	—	—	●
WIPE	—	—	—	—	●
Audio	monaural	monaural	monaural	monaural	stereo

● Provided
— Not provided

* The models without VIDEO/AUDIO IN have CAMERA, OFF and PLAYER mode on the POWER switch.
** Output only

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

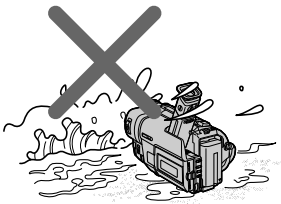
Copyright precautions

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

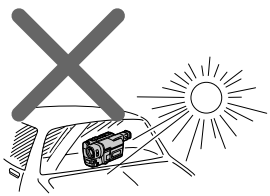
Precautions on camcorder care

- **The LCD screen and the viewfinder are manufactured using high-precision technology.**
  However, there may be some tiny black points and/or bright points (red, blue, green or white) that constantly appear on the LCD screen and in the viewfinder. These points occur normally in the manufacturing process and do not affect the recorded picture in any way.
  Effective ratio of pixels and/or screen are 99.99% or more.
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired **[a]**.
- Never leave your camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight **[b]**.
- Do not place your camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder or the LCD screen may be damaged **[c]**.

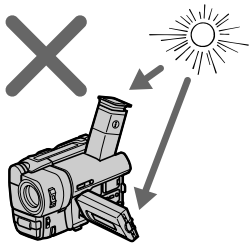
[a]



[b]

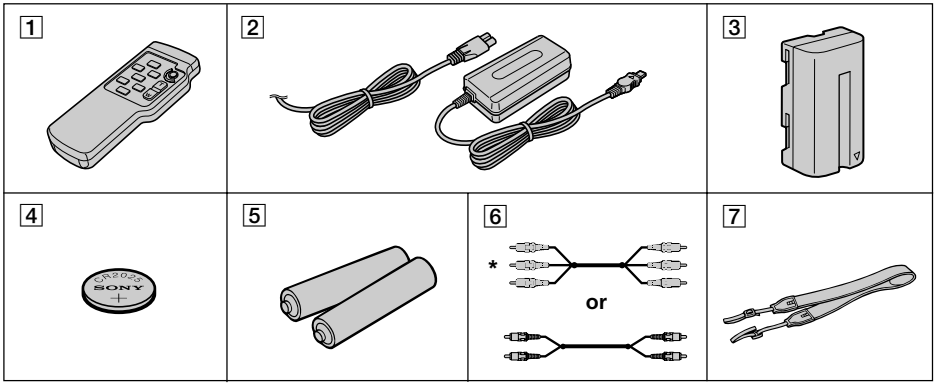


[c]



Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1) (p. 84)
CCD-TRV57/TRV67/TRV87 only

2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Power cord** (1) (p. 10)

3 **NP-F330 battery pack** (1) (p. 9, 10)

4 **CR2025 lithium battery** (1) (p. 65)
The lithium battery is already installed in your camcorder.

5 **Size AA (R6) battery for Remote Commander** (2) (p. 84)
CCD-TRV57/TRV67/TRV87 only

6 **A/V connecting cable** (1) (p. 27)
* for stereo model

7 **Shoulder strap** (1) (p. 81)

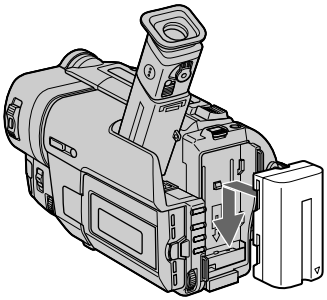
Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Step 1 Preparing the power supply

Installing the battery pack

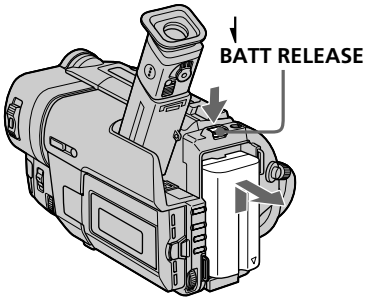
Install the battery pack to use your camcorder outdoors.

Slide the battery pack down until it clicks.



To remove the battery pack

Slide the battery pack out in the direction of the arrow while pressing ↓ BATT RELEASE down.



After installing the battery pack

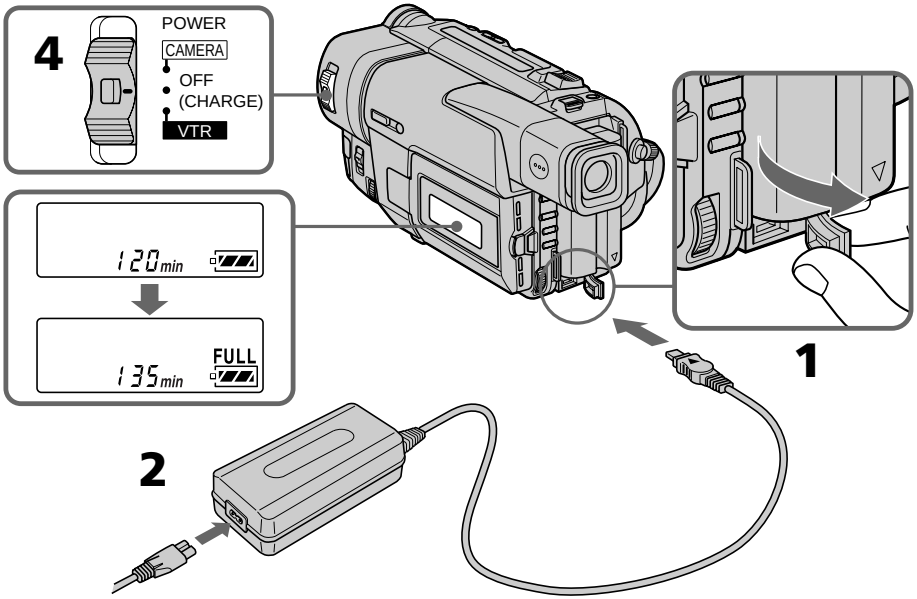
Do not carry your camcorder by holding the battery pack. If you do so, the battery pack may slide off your camcorder unintentionally, damaging your camcorder.

Charging the battery pack

Use the battery pack after charging it for your camcorder.
Your camcorder operates only with the "InfoLITHIUM" battery pack (L series).

(1) Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
(2) Connect the power cord to the AC power adaptor.
(3) Connect the power cord to a wall outlet.
(4) Set the POWER switch to OFF (CHARGE). Charging begins. The remaining battery time is indicated in minutes on the display window.

When the remaining battery indicator changes to ▬, **normal charge** is completed. To fully charge the battery **(full charge)**, leave the battery pack attached for about 1 hour after normal charge is completed until FULL appears in the display window. Fully charging the battery allows you to use the battery longer than usual.



Notes

- Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.
- Keep the battery pack dry.
- When the battery pack is not to be used for a long time, charge the battery pack once fully and then use it until it fully discharges again. Keep the battery pack in a cool place.

Remaining battery time indicator

The remaining battery time indicator in the display window roughly indicates the recording time with the viewfinder.

Battery pack

The battery pack is charged a little before it leaves the factory.

Until your camcorder calculates the actual remaining battery time

"– – – – min" appears in the display window.

While charging the battery pack, no indicator appears or the indicator flashes in the display windpw in the following cases

– The battery pack is not installed correctly.
– The AC power adaptor is disconnected.
– Something is wrong with the battery pack.

Charging time

Battery pack	Full charge (Normal charge)
NP-F330 (supplied)	150 (90)
NP-F530/F550	210 (150)
NP-F730/F730H/F750	300 (240)
NP-F930/F950	390 (330)
NP-F960	420 (360)

Approximate number of minutes to charge an empty battery pack

Recording time

CCD-TRV17/TRV37/TRV57/TRV67

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	140 (125)	75 (70)	120 (105)	65 (55)
NP-F530	245 (220)	135 (120)	205 (180)	110 (100)
NP-F550	280 (250)	155 (135)	240 (210)	130 (115)
NP-F730	500 (450)	275 (245)	410 (370)	225 (205)
NP-F730H/F750	580 (525)	320 (290)	490 (440)	270 (240)
NP-F930	780 (705)	430 (385)	650 (585)	355 (320)
NP-F950	900 (790)	495 (435)	750 (675)	410 (370)
NP-F960	1035 (930)	570 (510)	880 (790)	490 (440)

CCD-TRV87

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	135 (120)	75 (65)	115 (100)	65 (55)
NP-F530	235 (210)	130 (115)	195 (170)	110 (95)
NP-F550	270 (240)	150 (130)	230 (200)	125 (110)
NP-F730	475 (425)	260 (235)	395 (355)	215 (195)
NP-F730H/F750	550 (500)	300 (275)	470 (425)	260 (235)
NP-F930	745 (670)	410 (370)	625 (560)	345 (310)
NP-F950	850 (760)	465 (420)	725 (650)	400 (355)
NP-F960	990 (890)	545 (490)	850 (765)	470 (420)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "( )" indicate the time using a normally charged battery.

***** Approximate continuous recording time at 77°F (25°C). The battery life will be shorter if you use your camcorder in a cold environment.

****** Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Playing time

CCD-TRV17/TRV37/TRV57/TRV67

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	125 (110)	145 (130)
NP-F530	215 (190)	260 (230)
NP-F550	250 (220)	295 (260)
NP-F730	430 (385)	525 (475)
NP-F730H/F750	510 (460)	610 (550)
NP-F930	680 (610)	825 (740)
NP-F950	780 (700)	930 (830)
NP-F960	915 (820)	1090 (980)

CCD-TRV87

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	120 (105)	140 (125)
NP-F530	205 (180)	245 (220)
NP-F550	240 (210)	280 (250)
NP-F730	410 (370)	500 (450)
NP-F730H/F750	490 (440)	580 (525)
NP-F930	680 (585)	780 (705)
NP-F950	750 (675)	900 (790)
NP-F960	880 (790)	1035 (930)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "( )" indicate the time using a normally charged battery. The battery life will be shorter if you use your camcorder in a cold environment.

After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note on the remaining battery time indicator during recording

The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining battery time to be displayed.

What is "InfoLITHIUM"?

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible electronic equipment. This unit is compatible with the "InfoLITHIUM" battery pack (L series). Your camcorder operates only with the "InfoLITHIUM" battery. "InfoLITHIUM" L series battery packs have the InfoLITHIUM L SERIES mark.

"InfoLITHIUM" is a trademark of Sony Corporation.

Step 1 Preparing the power supply

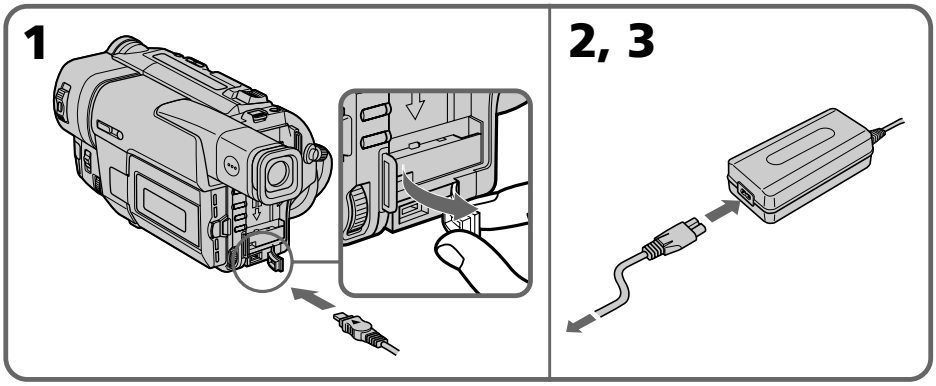
Connecting to a wall outlet

When you use your camcorder for a long time, we recommend that you power it from a wall outlet using the AC power adaptor.

(1) Open the DC IN jack cover, and connect the AC power adaptor to the DC IN jack on your camcorder with the plug's ▲ mark facing up.

(2) Connect the power cord to the AC power adaptor.

(3) Connect the power cord to a wall outlet.



PRECAUTION

The set is not disconnected from the AC power source (house current) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Notes

- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority". This means that the battery pack cannot supply any power if the power cord is connected to the DC IN jack, even when the power cord is not plugged into a wall outlet.

Using a car battery

Use Sony DC Adaptor/Charger (not supplied).

Step 2 Inserting a cassette

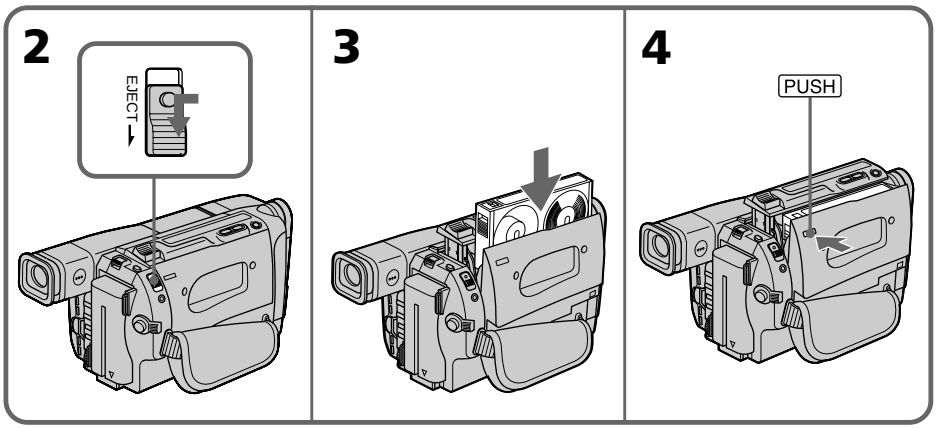
When you want to record in the Hi8 system, use Hi8 video cassette Hi8. (CCD-TRV67/TRV87 only)

(1) Prepare the power supply (p. 9).

(2) Slide EJECT in the direction of the arrow while pressing the small blue button. The cassette compartment automatically lifts up and opens.

(3) Insert a cassette with its window facing out and the tab on the cassette up.

(4) Close the cassette compartment by pressing the PUSH mark on the cassette compartment. The cassette compartment automatically goes down.



To eject a cassette

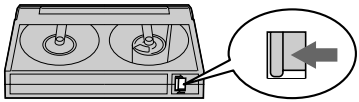
Slide EJECT in the direction of the arrow while pressing the small blue button.

Note

Do not press the cassette compartment down. Doing so may cause malfunction.

To prevent accidental erasure

Slide the write-protect tab on the cassette to expose the red mark.



Recording a picture

Your camcorder automatically focuses for you.

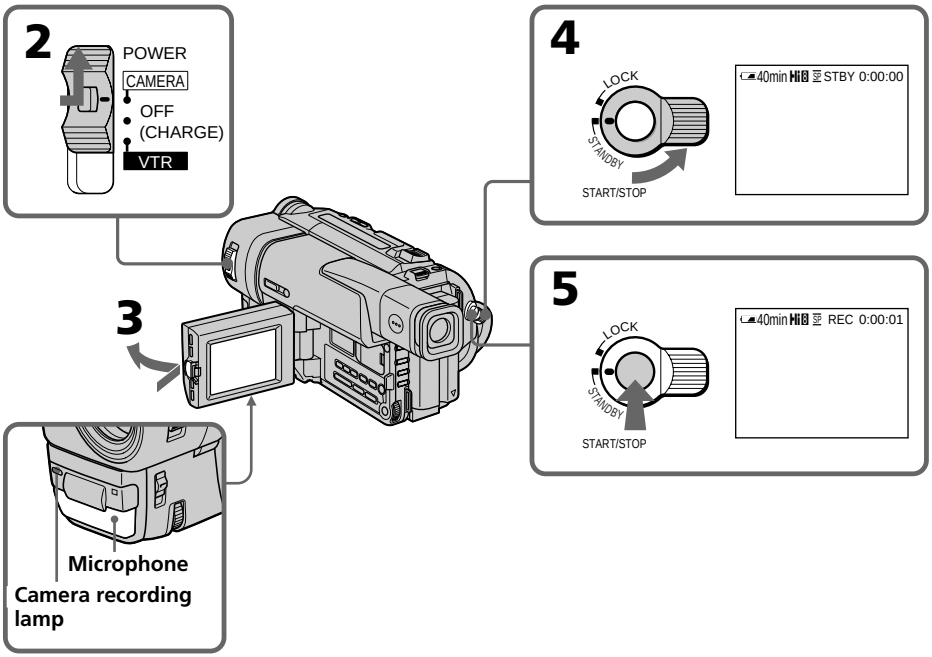
(1) Install the power source and insert a cassette. See “Step 1” and “Step 2” for more information (p. 9 to 15).

(2) Set the POWER switch to CAMERA while pressing the small green button. The lens cover opens.

(3) Open the LCD panel while pressing OPEN. The viewfinder automatically turns off.

(4) Turn STANDBY to STANDBY.

(5) Press START/STOP. Your camcorder starts recording. The “REC” indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again.
The recording lamp lights up in the viewfinder when you record with the viewfinder.



Note

Fasten the grip strap firmly. Do not touch the built-in microphone during recording.

To enable smooth transition

You can make the transition between the last scene you recorded and the next scene smooth as long as you do not eject the cassette. When you exchange the battery pack in the recording mode, set STANDBY to LOCK.

If you leave your camcorder in the standby mode for 5 minutes while the cassette is inserted
Your camcorder automatically turns off. This is to save battery power and to prevent battery and tape wear. To resume the standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

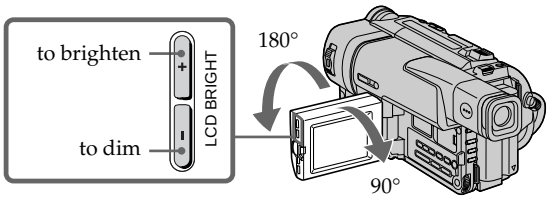
To set the counter to 0:00:00
Press COUNTER RESET (p. 82).

After recording

(1) Turn STANDBY down to LOCK.
(2) Close the LCD panel.
(3) Eject the cassette.
(4) Set the POWER switch to OFF (CHARGE).
(5) Remove the battery pack.

Adjusting the LCD screen

To adjust the brightness of the LCD screen, press either of the two buttons on LCD BRIGHT.
The LCD panel moves about 90 degrees to the viewfinder side and about 180 degrees to the lens side.
If you turn the LCD panel over so that it faces the other way, the ☺ indicator appears in the viewfinder and on the LCD screen (**Mirror mode**).



When closing the LCD panel, set it vertically until it clicks, and swing it into the camcorder body.

Note
When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.

When you use the LCD screen outdoors in direct sunlight
The LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

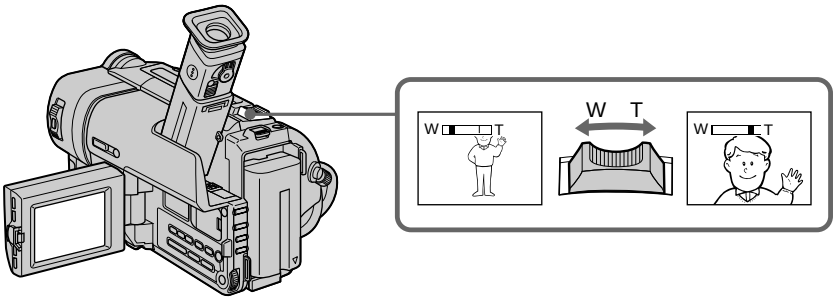
Picture in the mirror mode
The picture on the LCD is a mirror-image. However, the picture will be normal when recorded.

During recording in the mirror mode
DATE and TIME on your camcorder do not work.

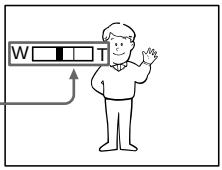
Indicators in the mirror mode
- The STBY indicator appears as ❚❚● and REC as ●. Some of the other indicators appear mirror-reversed and others are not displayed.
- The date appears mirror-reversed when the auto date function is working. However, the date will be normal when recorded.

Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom. Using the zoom function sparingly results in better-looking recordings.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)



Zoom greater than 20× is performed digitally.
To activate digital zoom, select the digital zoom power in D ZOOM in the menu settings. (p. 55)
The picture quality deteriorates as the picture is processed digitally.



The right side of the bar shows the digital zooming zone.
The digital zooming zone appears when you select the digital zoom power in D ZOOM in the menu settings.

When you shoot close to a subject

If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 2 feet 5/8 inch (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

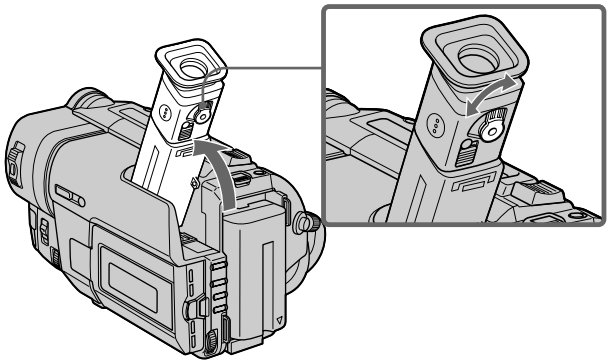
Notes on digital zoom

- Digital zoom starts to function when zoom exceeds 20×.
- The picture quality deteriorates as you go toward the "T" side.

To record pictures with the viewfinder – adjusting the viewfinder

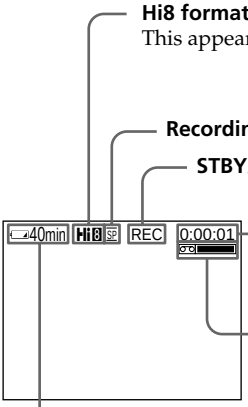
If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the indicators in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.



Indicators displayed in the recording mode

The indicators are not recorded on tape.



Hi8 format indicator (CCD-TRV67/TRV87 only)
This appears while playing back or recording in Hi8 format.

Recording mode indicator

STBY/REC indicator

Tape counter

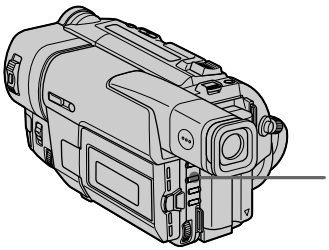
Remaining tape indicator
This appears after you insert a cassette and record or play back for a while.

Remaining battery time indicator

Shooting backlit subjects (BACK LIGHT)

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT in the recording or standby mode.
The indicator appears in the viewfinder or on the LCD screen.
To cancel, press BACK LIGHT again.



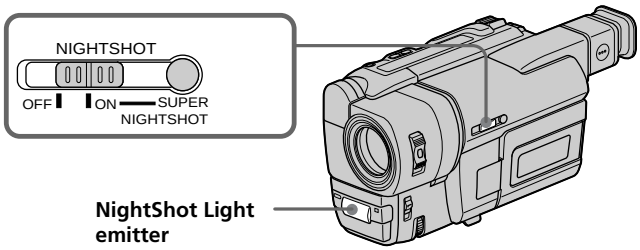
BACK LIGHT

If you press EXPOSURE when shooting backlit subjects
The backlight function will be canceled.

Shooting in the dark (NightShot)

The NightShot function enables you to shoot a subject in a dark place. For example, you can satisfactorily record the environment of nocturnal animals for observation when you use this function.

While your camcorder is in the standby mode, slide NIGHTSHOT to ON.
⊙ and "NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder. To cancel the NightShot function, slide NIGHTSHOT to OFF.



Using the Super NightShot mode

– CCD-TRV87 only

The Super NightShot mode makes subjects more than four times brighter than those recorded in the NightShot mode.

(1) Slide NIGHTSHOT to ON in the standby mode. ⊙ indicator appears on the LCD screen or in the viewfinder.
(2) Press SUPER NIGHTSHOT. S⊙ and "SUPER NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder.
To cancel the Super NightShot mode, press SUPER NIGHTSHOT again.

Using the NightShot Light

The picture will be clearer with the NightShot Light on. To enable NightShot Light, set N.S.LIGHT to ON in the menu settings (p. 55).

Notes

- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camcorder to malfunction.
- When you keep NIGHTSHOT set to ON in normal recording, the picture may be recorded in incorrect or unnatural colors.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

While using the NightShot function, you can not use the following functions:

– Exposure
– PROGRAM AE
– Fader* (CCD-TRV87 only)
– Digital effect* (CCD-TRV87 only)

* You cannot use these functions only in the Super NightShot mode.

Shutter speed in the Super NightShot mode (CCD-TRV87 only)

The shutter speed will be automatically changed depending on the brightness of the scene.

The SUPER NIGHTSHOT button does not work (CCD-TRV87 only):
– while the fader function is set or in use
– while the digital effect function is in use
– when NIGHTSHOT is set to OFF

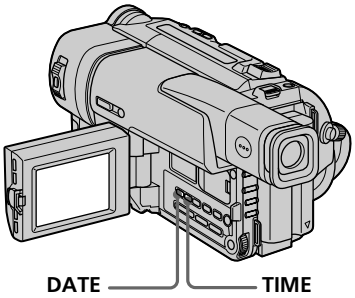
NightShot Light
NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 10 feet (3 m). The shooting distance will be twice or more in the Super NightShot mode (CCD-TRV87 only).

Superimposing the date and time on pictures

You can record the date or time displayed in the viewfinder or on the LCD screen superimposed on the picture.
Carry out the following operations in the standby or recording mode.

Press DATE to record the date.
Press TIME to record the time.
Press DATE (or TIME), then press TIME (or DATE) to record the date and time.

Press DATE and/or TIME again. The date and/or time indicator disappears.



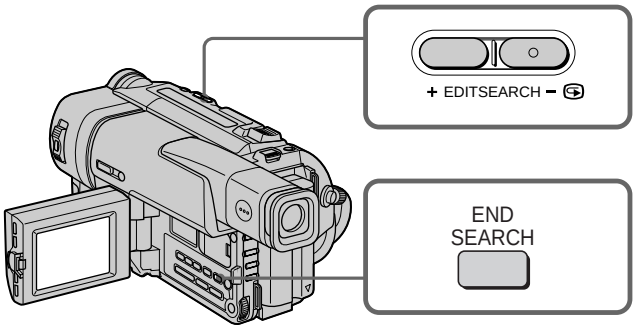
The default clock setting is set to East Coast Standard Time. You can reset the clock in the menu settings (p. 55).

Note
The date and time indicators recorded manually cannot be deleted.

If you do not record the date and time in the picture
Record the date and time in the black screen as the background for about 10 seconds, then erase the date and time indicators before starting actual recording.

Checking the recording
– END SEARCH / EDITSEARCH / Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.



END SEARCH

You can go to the end of the recorded section after you record.

Press END SEARCH in the standby mode.
The last 5 seconds of the recorded section are played back and playback stops. You can monitor the sound from the speaker, headphones (CCD-TRV87 only) or an earphone (CCD-TRV17/TRV37/TRV57/TRV67 only).

Note
If you start recording after using the end search function, occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Once you eject the cassette after you have recorded on the tape
The end search function does not work.

EDITSEARCH

You can search for the next recording start point.

Hold down the +/– (⏩) side of EDITSEARCH in the standby mode. The recorded section is played back.
+ : to go forward
– : to go backward
Release EDITSEARCH to stop playback. If you press START/STOP, re-recording begins from the point you released EDITSEARCH. You cannot monitor the sound.

Rec Review

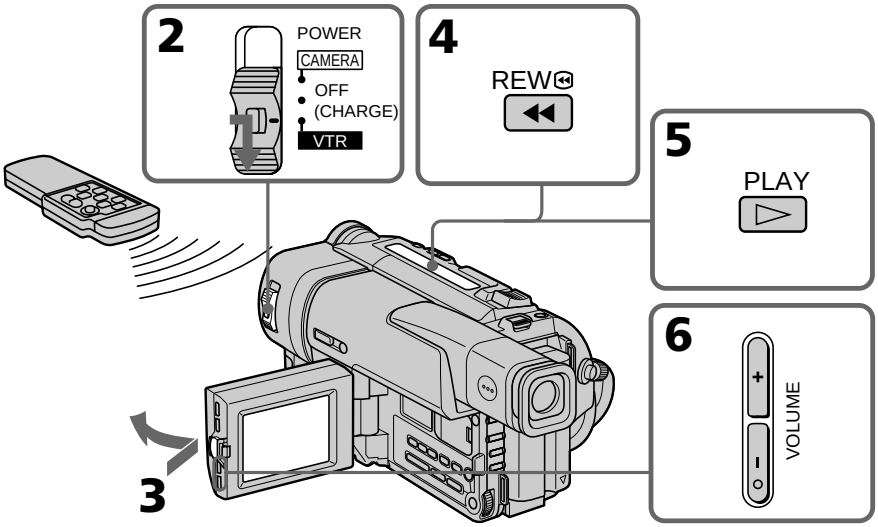
You can check the last recorded section.

Press the – (⏪) side of EDITSEARCH momentarily in the standby mode.
The last few seconds of the recorded section are played back. You can monitor the sound from the speaker, headphones (CCD-TRV87 only) or an earphone (CCD-TRV17/TRV37/TRV57/TRV67 only).

Playing back a tape

You can monitor the playback picture on the LCD screen or in the viewfinder. If you close the LCD panel, you can monitor the playback picture in the viewfinder. You can control playback using the Remote Commander supplied with your camcorder. (CCD-TRV57/TRV67/TRV87 only)

(1) Install the power source and insert the recorded tape.
(2) Set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) while pressing the small green button.
(3) Open the LCD panel while pressing OPEN.
(4) Press ◄◄ to rewind the tape.
(5) Press ► to start playback.
(6) To adjust the volume, press either of the two buttons on VOLUME. The speaker on your camcorder is silent when the LCD panel is closed.



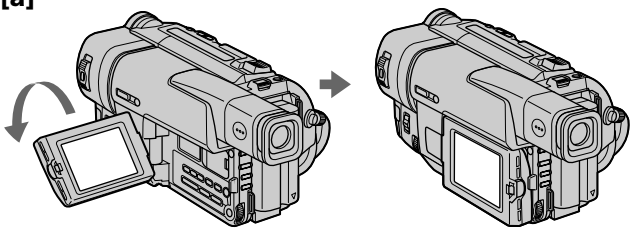
To stop playback

Press ■

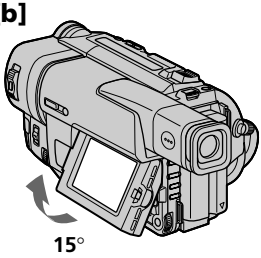
When monitoring on the LCD screen

You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out **[a]**. You can adjust the angle of the LCD panel by lifting the LCD panel up by 15 degrees **[b]**.

[a]

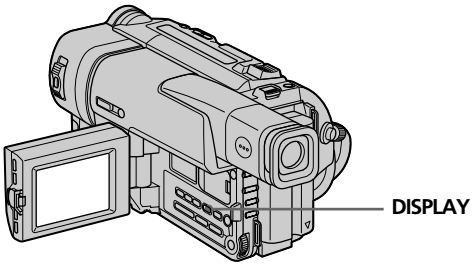


[b]



To control the display of the screen indicators

Press DISPLAY on your camcorder or the Remote Commander (CCD-TRV57/TRV67/TRV87 only) supplied with your camcorder.
The indicators appear on the LCD screen.
To make the indicators disappear, press DISPLAY again.



Various playback modes

To operate video control buttons, set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67 only).

To view a still picture (playback pause)

Press ❚❚ during playback. To resume playback, press ❚❚ or ►.

To advance the tape

Press ►► in the stop mode. To resume normal playback, press ►.

To rewind the tape

Press ◄◄ in the stop mode. To resume normal playback, press ►.

To locate a scene monitoring the picture (picture search)

Keep pressing ◄◄ or ►► during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing or rewinding the tape (skip scan)

Keep pressing ◄◄ while rewinding or ►► while advancing the tape. To resume rewinding or advancing, release the button.

To view the picture at slow speed (slow playback) – CCD-TRV57/TRV67/TRV87 only

Press ❚► on the Remote Commander during playback. To resume normal playback, press ►.

To search the last scene recorded (END SEARCH)

Press END SEARCH in the stop mode. The last 5 seconds of the recorded section plays back and stops.

In the various playback modes
Sound is muted.

When the playback pause mode lasts for 5 minutes
Your camcorder automatically enters the stop mode. To resume playback, press ►.

If slow playback lasts for about 1 minute (CCD-TRV57/TRV67/TRV87 only)
Your camcorder automatically returns to normal speed.

When you play back a tape recorded in the LP mode
Noise may appear during playback pause mode, slow playback (CCD-TRV57/TRV67/TRV87 only) or picture search.

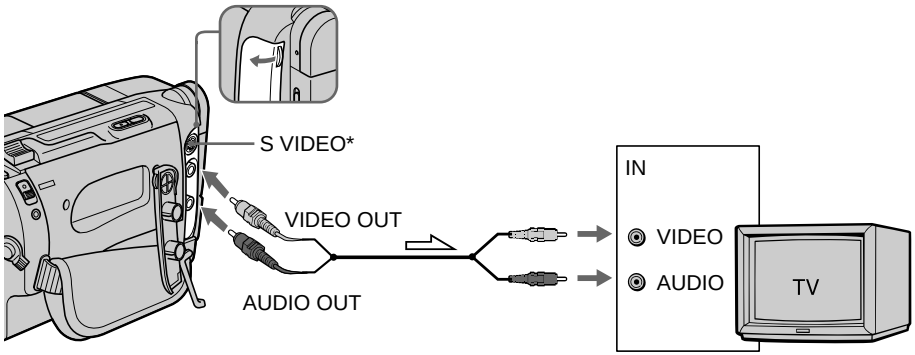
The tapes recorded in the Hi8 format (CCD-TRV17/TRV37/TRV57 only)
You can play back the tapes recorded in the Hi8 video system on your camcorder.

Viewing the recording on TV

Connect your camcorder to your TV or VCR with the A/V connecting cable supplied with your camcorder to watch the playback picture on the TV screen. You can operate the playback control buttons in the same way as when you monitor playback pictures on the LCD screen. When monitoring the playback picture on the TV screen, we recommend that you power your camcorder from a wall outlet using the AC power adaptor (p. 14). Refer to the operating instructions of your TV or VCR.

Open the jack cover. Connect your camcorder to the TV using the A/V connecting cable. Then, set the TV/VCR selector on the TV to VCR.

CCD-TRV17/TRV37/TRV57/TRV67

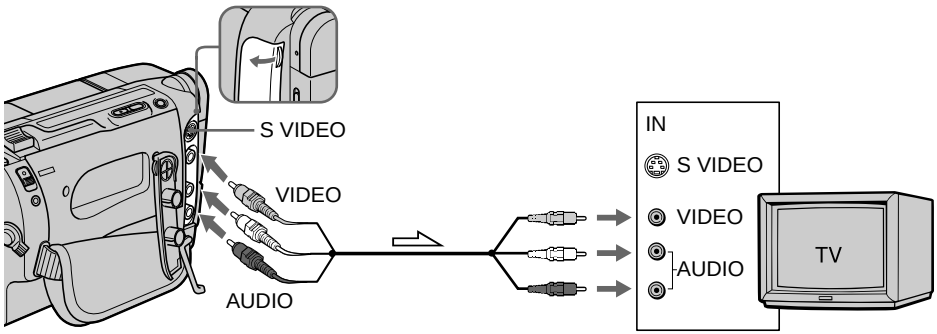


CCD-TRV67

: Signal flow

* CCD-TRV67 only

CCD-TRV87



: Signal flow

If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A/V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

If your TV or VCR is a monaural type

– CCD-TRV87 only

Connect the yellow plug for video and the white plug for audio on both your camcorder and the TV or the VCR (you do not connect the red plug).
With this connection, the sound is monaural.

To connect to a TV or VCR without Video/Audio input jacks

Use an NTSC system RFU adaptor (not supplied).
Refer to the operating instructions of your TV or VCR and the RFU adaptor. With an RFU adaptor, the sound is monaural even on stereo models.

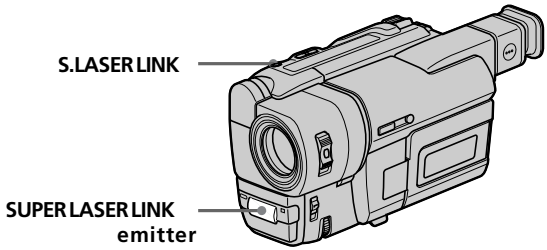
If your TV or VCR has an S video jack (CCD-TRV67/TRV87 only)
Connect using an S video cable (not supplied) to obtain high-quality pictures. With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect the S video cable (not supplied) to the S video jacks on both your camcorder and the TV or the VCR.

Monitoring the picture from a TV or VCR (CCD-TRV87 only)
You can monitor the picture on the LCD screen. Connect your camcorder to the outputs on the TV or VCR.

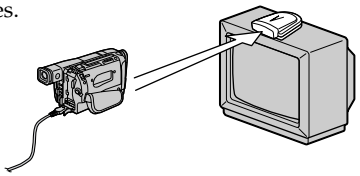
Using the AV cordless IR receiver

– CCD-TRV87 only

Once you connect the AV cordless IR receiver (not supplied) to your TV or VCR, you can easily view the picture on your TV. For details, refer to the operating instructions of the AV cordless IR receiver.



(1) After connecting your TV and AV cordless IR receiver, set the POWER switch on the AV cordless IR receiver to ON.
(2) Turn the TV on and set the TV/VCR selector on the TV to VCR.
(3) Press S.LASER LINK. The lamp of S.LASER LINK lights up.
(4) Press ► on your camcorder to start playback.
(5) Point the SUPER LASER LINK emitter at the AV cordless IR receiver. Adjust the position of your camcorder and the AV cordless IR receiver to obtain clear playback pictures.



To cancel the super laser link function

Press S.LASER LINK. The lamp on the S.LASER LINK button goes out.

If you turn the power off

Super laser link turns off automatically.

If you use a Sony TV

- You can turn on the TV automatically when you press S.LASER LINK or ►To do so, set AUTO TV ON to ON in the menu settings and turn the TV's main switch on, then do either of the following:
  – Point the SUPER LASER LINK emitter at the TV's remote sensor and press S.LASER LINK.
  – Turn on super laser link and press ►
- You can switch the video input of the TV automatically to the one which the AV cordless IR receiver is connected. To do so, set AUTO TV ON to ON and TV INPUT to the same video input (1, 2, 3) in the menu settings. With some models, however, the picture and sound may be disconnected momentarily when the video input is switched.
- The above feature may not work on some TV models.

Note

When super laser link is activated (the S.LASER LINK button is lit), your camcorder consumes power. Press S.LASER LINK to turn off the super laser link function when it is not needed.

Recording a still image on a tape – Tape Photo recording

– CCD-TRV87 only

You can record a still picture like a photograph. This mode is useful when you want to record a picture such as a photograph or when you print a picture using a video printer (not supplied).

NORMAL PHOTO This mode records a still picture for about seven seconds.

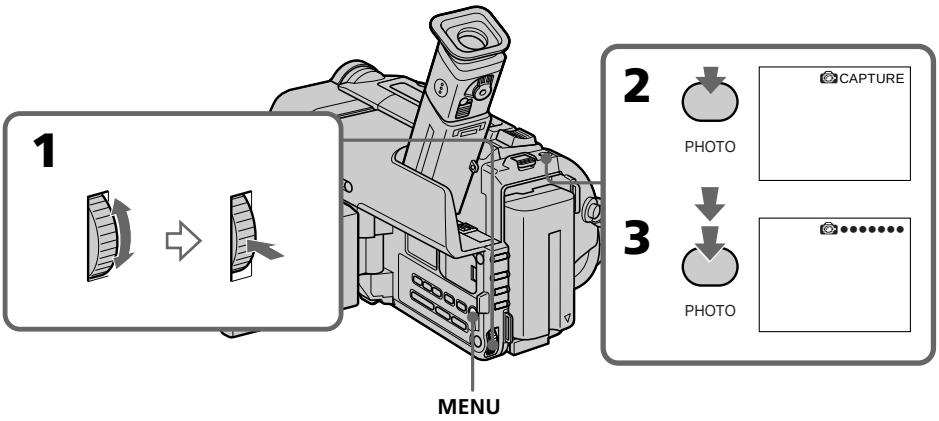
FADE PHOTO

SHUTTER PHOTO

(1) While your camcorder is in the standby mode, select the photo mode in the menu settings (p. 55).

(2) Keep pressing PHOTO lightly until a still picture appears. The CAPTURE indicator appears. Recording does not start yet.
To change the still picture, release PHOTO, select a still picture again, and then press and hold PHOTO lightly.

(3) Press PHOTO deeper.
The still picture in the viewfinder or on the LCD screen is recorded for about seven seconds. The sound during those seven seconds is also recorded.
The still image is displayed in the viewfinder or on the LCD screen until recording is completed.



Notes

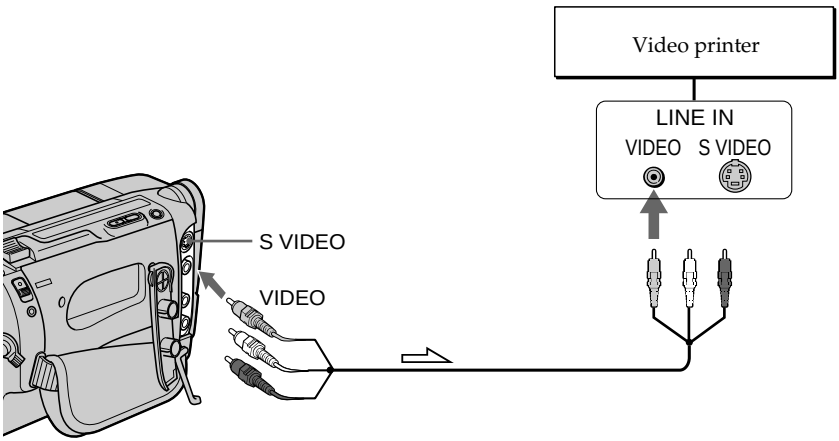
- During tape photo recording, you cannot change the mode or setting of the following functions:
  - Digital effect
  - Fader
  - PROGRAM AE
  - Picture effect
  - Exposure
  - Wide mode
  - Backlight
  - Super NightShot
- The PHOTO button does not work:
  - while the digital effect function is set or in use.
  - while the fader function is in use.
- When recording a still picture, do not shake your camcorder. The picture may fluctuate.

To use the tape photo recording function during normal CAMERA recording

Press PHOTO deeper. The still picture is then recorded for about seven seconds and your camcorder returns to the standby mode. You cannot select another still picture.

Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the A/V connecting cable supplied with your camcorder.
Connect the yellow plug of the cable to the video jack on both your camcorder and the video printer. Refer to the operating instructions of the video printer as well.



If the video printer is equipped with S video input

Use the S video connecting cable (not supplied). Connect it to the S VIDEO jack and the S video input of the video printer.

Using the wide mode

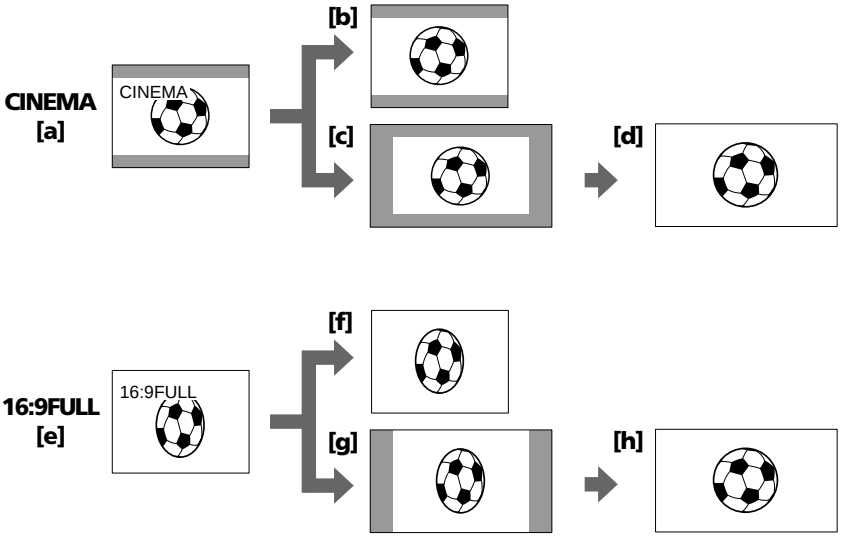
You can record a cinema-like picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9FULL). Refer to the operating instructions of your TV.

CINEMA

Black bands appear on the screen during recording in the CINEMA mode **[a]**, playing back on a normal TV **[b]** or a wide-screen TV **[c]**. If you set the screen mode of the wide-screen TV to the zoom mode, a picture without black bands appears **[d]**.

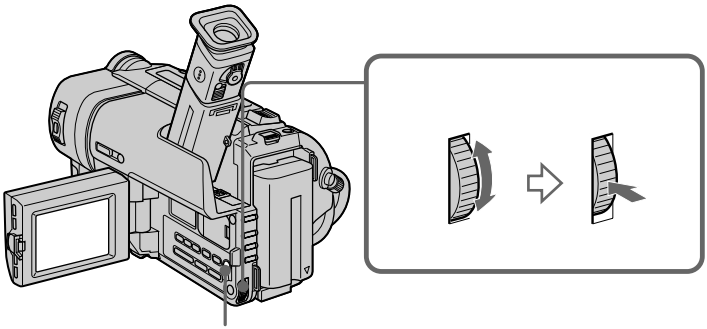
16:9FULL

The picture during recording in the 16:9FULL mode **[e]**, or playing back on a normal TV **[f]** or a wide-screen TV **[g]** is horizontally compressed. If you set the screen mode of the wide-screen TV to the full mode, you can watch pictures of normal images **[h]**.



Using the wide mode

In the standby mode, set 16:9WIDE to CINEMA or 16:9FULL in the menu settings (p. 55).



To cancel the wide mode

Set 16:9WIDE to OFF in the menu settings.

If the wide mode is set to 16:9FULL (CCD-TRV57/TRV67/TRV87 only)

The SteadyShot function does not work. If you select 16:9FULL in the menu settings when the SteadyShot function is working, "✋" flashes and the SteadyShot function does not function.

In the wide mode

You cannot select the old movie function with DIGITAL EFFECT (CCD-TRV87 only) and the bounce function with FADER.

Date or time indicator

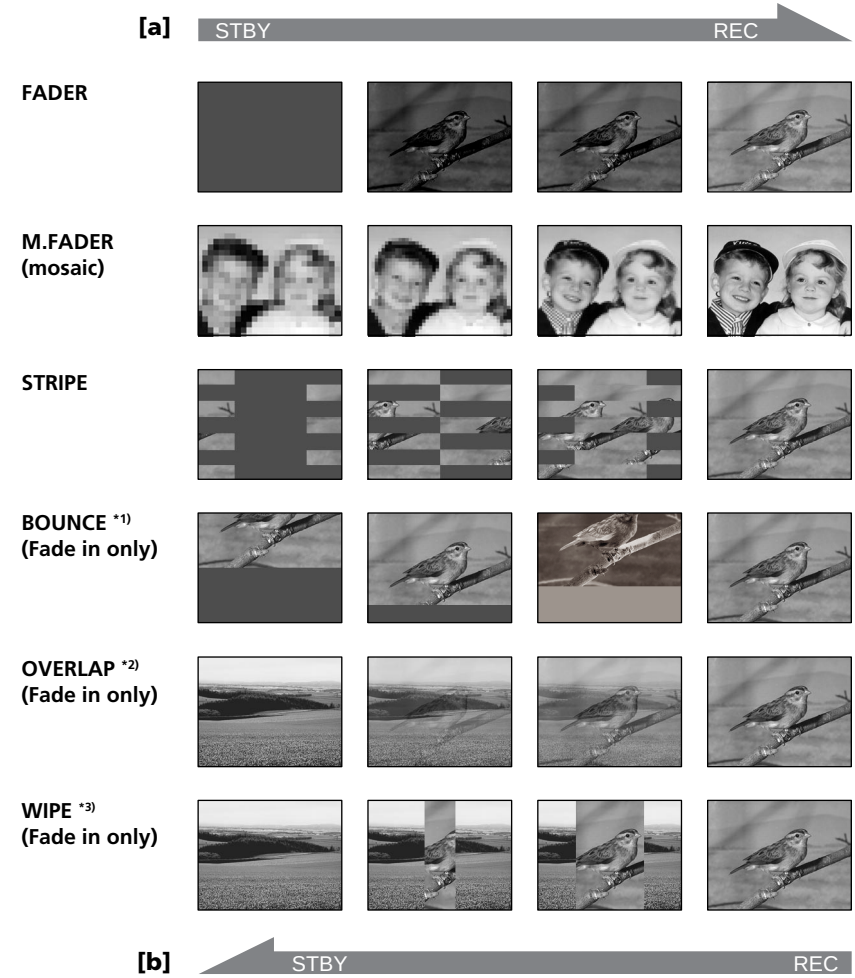
When you record in the 16:9FULL mode, the date or time indicator will be widened on wide-screen TVs.

During recording

You cannot change or cancel the wide mode. When you cancel the wide mode, set your camcorder to the standby mode and then set 16:9WIDE to OFF.

Using the fader function

You can fade in or out to give your recording a professional appearance.



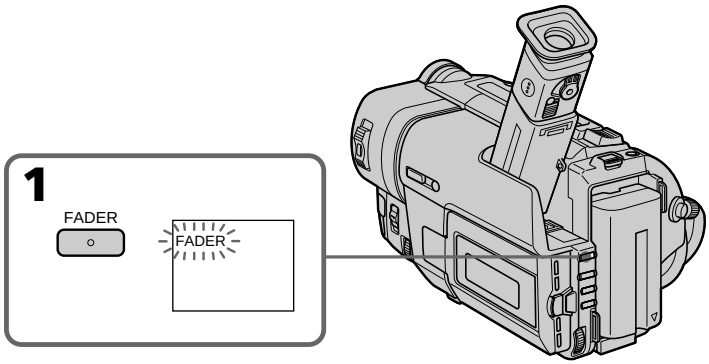
MONOTONE
When fading in, the picture gradually changes from black-and-white to color.
When fading out the picture gradually changes from color to black-and-white.

*1) You can use this function only when D ZOOM is set to OFF.
*2) CCD-TRV87 only
*3) CCD-TRV87 only. The sound does not wipe away.

Using the fader function

(1) When fading in [a]
In the standby mode, press FADER until the desired fader indicator flashes.
When fading out [b]
In the recording mode, press FADER until the desired fader indicator flashes.
The indicator changes as follows:
FADER → M.FADER → STRIPE → BOUNCE → MONOTONE → OVERLAP (CCD-TRV87 only) → WIPE (CCD-TRV87 only) → no indicator
The last selected fader mode is indicated first of all.

(2) Press START/STOP. The fader indicator stops flashing.



To cancel the fader function

After the fade in/out is carried out : Your camcorder automatically returns to the normal mode.
Before the fade in/out is carried out : Before pressing START/STOP, press FADER until the indicator disappears.

Note (CCD-TRV87 only)
You cannot use the following functions while using the fader function. Also, you cannot use the fader function while using the following functions.
– Digital effect
– Low lux mode of PROGRAM AE (Overlap/Wipe function only)
– Super NightShot
– Tape Photo recording

The date, time indicator and title do not fade in or fade out
Erase them before operating the fader function if they are not needed.

If you do not record anything before operating the wipe or overlap function (CCD-TRV87 only)
Your camcorder stores the image on the tape. As the image is being stored, the WIPE or OVERLAP indicator flashes quickly, and the picture you are shooting disappears from the viewfinder. Depending on the tape condition, the picture may not be recorded clearly.

While using the bounce function, you cannot use the following functions:
– Focus
– Zoom
– Picture effect

Note on the bounce function
The BOUNCE indicator does not appear in the following mode or functions:
– D ZOOM is set to the mode other than OFF in the menu settings.
– Wide mode
– Picture effect
– PROGRAM AE

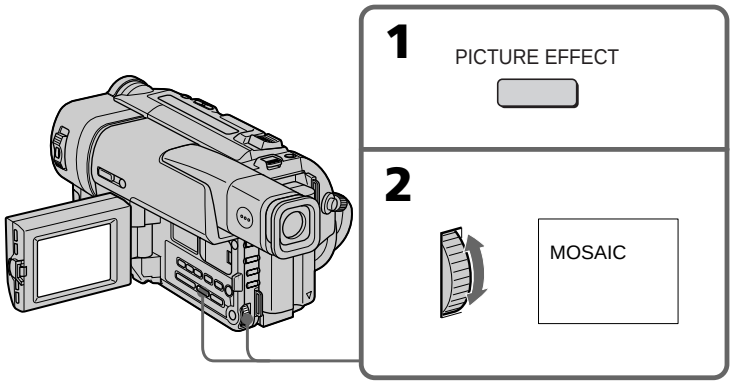
Using special effects – Picture effect

You can digitally process images to obtain special effects like those in films or on the TV.

PASTEL [a] : The contrast of the picture is emphasized, and the picture looks like an animated cartoon.
NEG. ART [b] : The color and brightness of the picture is reversed.
SEPIA : The picture is sepia.
B&W : The picture is monochrome (black-and-white).
SOLARIZE [c] : The light intensity is clearer, and the picture looks like an illustration.
MOSAIC [d] : The picture is mosaic.
SLIM [e] : The picture expands vertically.
STRETCH [f] : The picture expands horizontally.

[a] **[b]** **[c]** **[d]** **[e]** **[f]**

(1) Press PICTURE EFFECT in the standby or recording mode.
The picture effect indicator appears.
(2) Turn the SEL/PUSH EXEC dial to select the desired picture effect mode.
The indicator changes as follows:
PASTEL ⟷ NEG.ART ⟷ SEPIA ⟷ B&W ⟷ SOLARIZE ⟷ MOSAIC ⟷ SLIM ⟷ STRETCH



To turn the picture effect function off

Press PICTURE EFFECT.

While using the picture effect function (CCD-TRV87 only)
You cannot select the old movie mode with DIGITAL EFFECT.

When you turn the power off
Your camcorder automatically returns to the normal mode.

Using special effects – Digital effect

– CCD-TRV87 only

You can add special effects to recorded pictures using the various digital functions. The sound is recorded normally.

STILL
You can record a still picture so that it is superimposed on a moving picture.

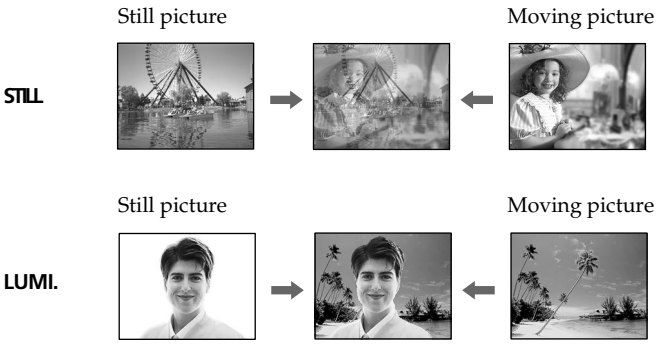
FLASH (FLASH MOTION)
You can record still pictures successively at constant intervals.

LUMI. (LUMINANCEKEY)
You can swap a brighter area in a still picture with a moving picture.

TRAIL
You can record the picture so that an incidental image like a trail is left.

SLOW SHTR (SLOW SHUTTER)
You can slow down the shutter speed. The slow shutter mode is good for recording dark pictures more brightly.

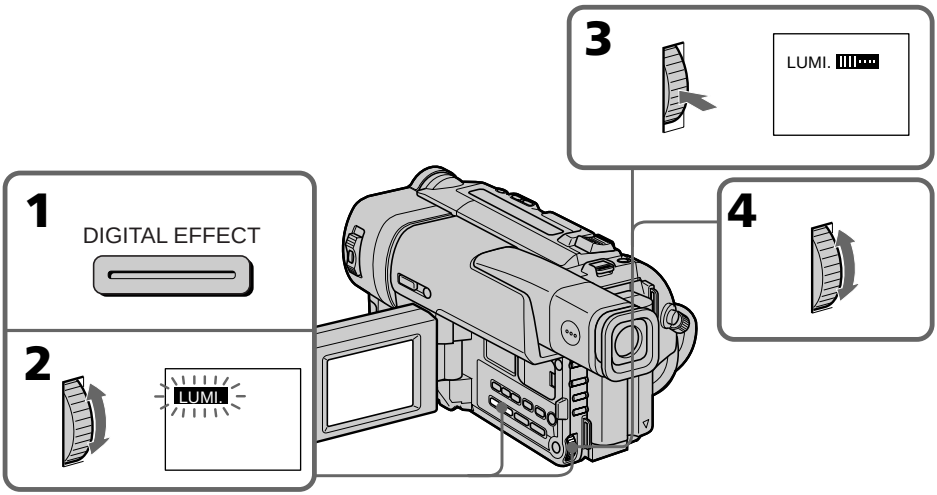
OLD MOVIE
You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the wide mode to CINEMA, picture effect to SEPIA, and the appropriate shutter speed.



(1) While your camcorder is in the standby or recording mode, press DIGITAL EFFECT. The digital effect indicator appears.
(2) Turn the SEL/PUSH EXEC dial to select the desired digital effect mode. The indicator changes as follows:
STILL ↔ FLASH ↔ LUMI. ↔ TRAIL ↔ SLOW SHTR ↔ OLD MOVIE
(3) Press the SEL/PUSH EXEC dial. The indicator lights up and the bars appear. In the STILL and LUMI. modes, the still picture is stored in memory.
(4) Turn the SEL/PUSH EXEC dial to adjust the effect as follows:

STILL – The rate of the still picture you want to superimpose on the moving picture
FLASH – The interval of flash motion
LUMI. – The color scheme of the area in the still picture which is to be swapped with a moving picture
TRAIL – The vanishing time of the incidental image
SLOW SHTR – Shutter speed. The larger the shutter speed number, the slower the shutter speed.
OLD MOVIE – No adjustment necessary

The more bars there are on screen, the stronger the digital effect. The bars appear in the following modes: STILL, FLASH, LUMI. and TRAIL.



To cancel the digital effect

Press DIGITAL EFFECT. The digital effect indicator disappears.

Notes

- The following functions do not work during digital effect:
  - Fader
  - Low lux mode of PROGRAM AE
  - Tape Photo recording
  - Super NightShot
- The following function does not work in the slow shutter mode:
  - Exposure
  - PROGRAM AE
- The following functions do not work in the old movie mode:
  - Exposure
  - Wide mode
  - Picture effect
  - PROGRAM AE

When you turn the power off

The digital effect will be automatically canceled.

When recording in the slow shutter mode

Auto focus may not be effective. Focus manually using a tripod.

Shutter speed

Shutter speed number	Shutter speed
SLOW SHTR 1	1/30
SLOW SHTR 2	1/15
SLOW SHTR 3	1/8
SLOW SHTR 4	1/4

Using the PROGRAM AE function

You can select PROGRAM AE (Auto Exposure) mode to suit your specific shooting requirements.

Spotlight mode
This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light in the theater.

Soft portrait mode
This mode brings out the subject while creating a soft background for subjects such as people or flowers.

Sports lesson mode
This mode minimizes shake on fast-moving subjects such as in tennis or golf.

Beach & ski mode
This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

Sunset & moon mode
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

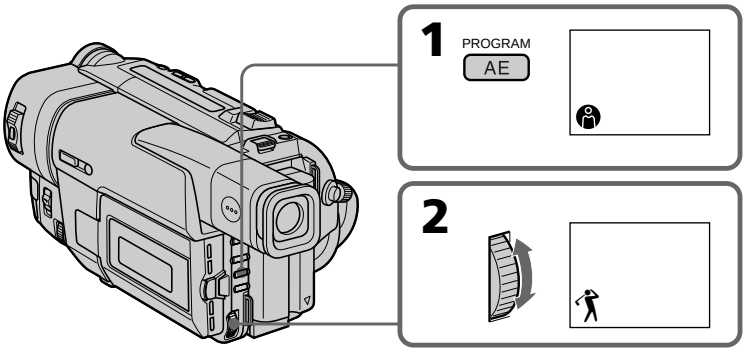
Landscape mode
This mode is for when you are recording distant subjects such as mountains and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.

Low lux mode (CCD-TRV87 only)
This mode makes subjects brighter in insufficient light.

(1) Press PROGRAM AE in the standby mode. The PROGRAM AE indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the desired PROGRAM AE mode. The indicator changes as follows:

(CCD-TRV87 only)



To turn the PROGRAM AE function off

Press PROGRAM AE.

Notes

- In the spotlight, sports lesson and beach & ski modes, you cannot take close-ups. This is because your camcorder is set to focus only on subjects in the middle to far distance.
- In the sunset & moon and landscape modes, your camcorder is set to focus only on distant subjects.
- The following functions do not work in the PROGRAM AE mode:
  – Slow shutter (CCD-TRV87 only)
  – Old movie (CCD-TRV87 only)
  – Bounce
- The following functions do not work in the low lux mode (CCD-TRV87 only):
  – Digital effect
  – Overlap
  – Wipe
  – Exposure
- If you press PROGRAM AE when using the NightShot function, the PROGRAM AE indicator flashes and the PROGRAM AE function does not work.

If you are recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp

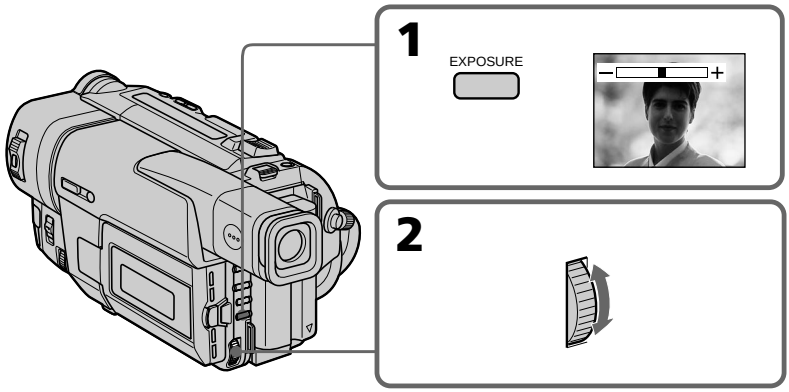
Flickering or changes in color may occur in the following modes. If this happens, turn the PROGRAM AE function off.

– Soft portrait mode
– Sports lesson mode

Adjusting the exposure manually

You can manually adjust and set the exposure.
Adjust the exposure manually in the following cases:
- The subject is backlit
- Bright subject and dark background
- To record dark pictures (e.g. night scenes) faithfully

(1) Press EXPOSURE in the standby or recording mode.
The exposure indicator appears.
(2) Turn the SEL/PUSH EXEC dial to adjust the brightness.



To return to the automatic exposure mode

Press EXPOSURE again.

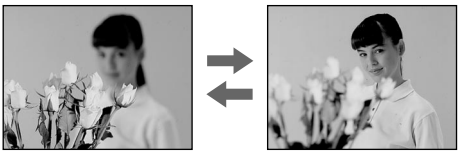
Note

When you adjust the exposure manually, the following function and modes do not work:
– Backlight
– Slow shutter (CCD-TRV87 only)
– Old movie (CCD-TRV87 only)

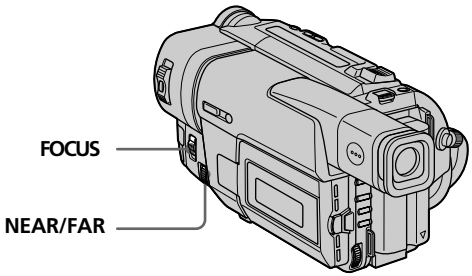
Your camcorder automatically returns to the automatic exposure mode:
– if you change the PROGRAM AE mode
– if you slide NIGHTSHOT to ON

Focusing manually

You can gain better results by manually adjusting the focus in the following cases:
- The autofocus mode is not effective when shooting
  – subjects through glass coated with water droplets
  – horizontal stripes
  – subjects with little contrast with backgrounds such as walls and sky
- When you want to change the focus from a subject in the foreground to a subject in the background
- Shooting a stationary subject when using a tripod



(1) Set FOCUS to MANUAL in the standby or recording mode. The ☞ indicator appears.
(2) Turn NEAR/FAR to sharpen focus.



To return to the autofocus mode

Set FOCUS to AUTO.

To record distant subjects

When you press FOCUS down to INFINITY, the lens focuses on infinity and ▲ indicator appears. When you release FOCUS, your camcorder returns to the manual focus mode. Use this mode when your camcorder focuses on near objects even though you are trying to shoot a distant object.

To focus precisely

Adjust the zoom by first focusing at the "T" (telephoto) position and then shooting at the "W" (wide-angle) position. This makes focusing easier.

When you shoot close to the subject

Focus at the end of the "W" (wide-angle) position.

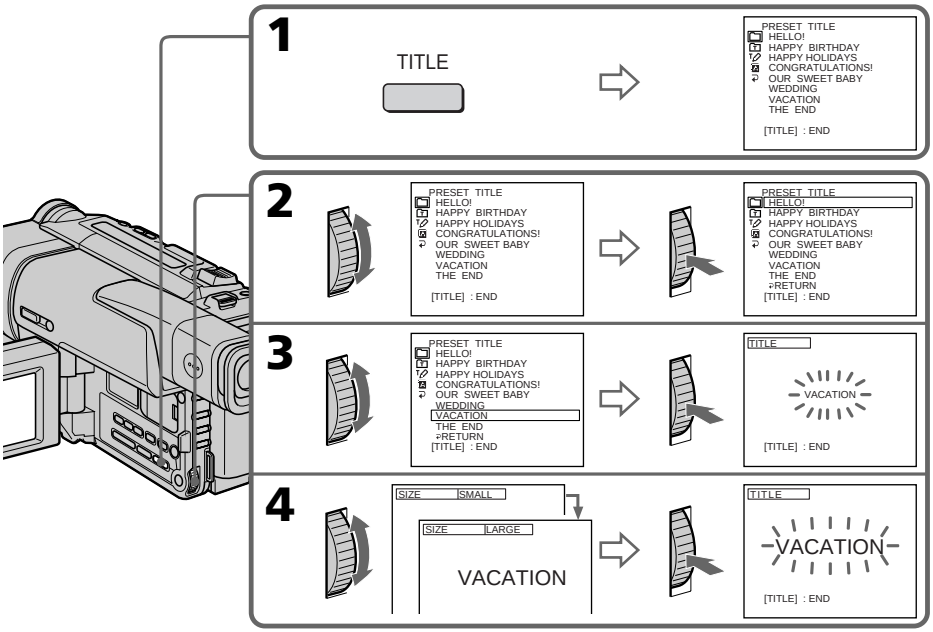
☞ changes to the following indicators:

▲ when recording a distant subject.
when the subject is too close to focus on.

Superimposing a title

You can select one of eight preset titles and two custom titles (p. 47). You can also select the language, color, size and position of titles.

(1) Press TITLE in the standby mode.
(2) Turn the SEL/PUSH EXEC dial to select 🗀, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select the desired title, then press the dial. The titles are displayed in the language you selected.
(4) Change the color, size, or position, if necessary.
① Turn the SEL/PUSH EXEC dial to select the color, size, or position, then press the dial. The item appears.
② Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
③ Repeat steps ① and ② until the title is laid out as desired.
(5) Press the SEL/PUSH EXEC dial again to complete the setting.
(6) Press START/STOP to start recording.
(7) When you want to stop recording the title, press TITLE.



To superimpose the title while you are recording

Press TITLE while you are recording, and carry out steps 2 to 5. When you press the SEL/PUSH EXEC dial at step 5, the title is superimposed.

To select the language of a preset title

If you want to change the language, select 🄰 before step 2. Then select the desired language and return to step 2.

Note

Both the date and time or either of them may not be displayed depending on the size or position of the title.

If you display the menu or title menu while superimposing a title

The title is not recorded while the menu or title menu is displayed.

To use the custom title

If you want to use the custom title, select 🗀 in step 2.
If you have not made any custom title, "– – – – ..." appears on the display.

Title setting

- The title color changes as follows :
  WHITE ↔ YELLOW ↔ VIOLET ↔ RED ↔ CYAN ↔ GREEN ↔ BLUE
- The title size changes as follows :
  SMALL ↔ LARGE
  You cannot input more than 13 characters in LARGE size.
- The title position changes as follows :
  1↔ 2↔ 3↔ 4↔ 5↔ 6↔ 7↔ 8↔ 9
  The larger the position number, the lower the title is positioned.
  When you select the title size "LARGE", you cannot choose position 9.
  When you select the title size "LARGE" in the CINEMA mode, you cannot choose position 8 nor 9.

When you are selecting and setting the title

You cannot superimpose the title displayed on the screen.

When you superimpose a title while you are recording

The beep does not sound.

Making your own titles

You can make up to two titles and store them in your camcorder. Each title can have up to 20 characters.

(1) Press TITLE in the standby or VTR (CCD-TRV87)/PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) mode.

(2) Turn the SEL/PUSH EXEC dial to select , then press the dial.

(3) Turn the SEL/PUSH EXEC dial to select the first line (CUSTOM1) or second line (CUSTOM2), then press the dial.

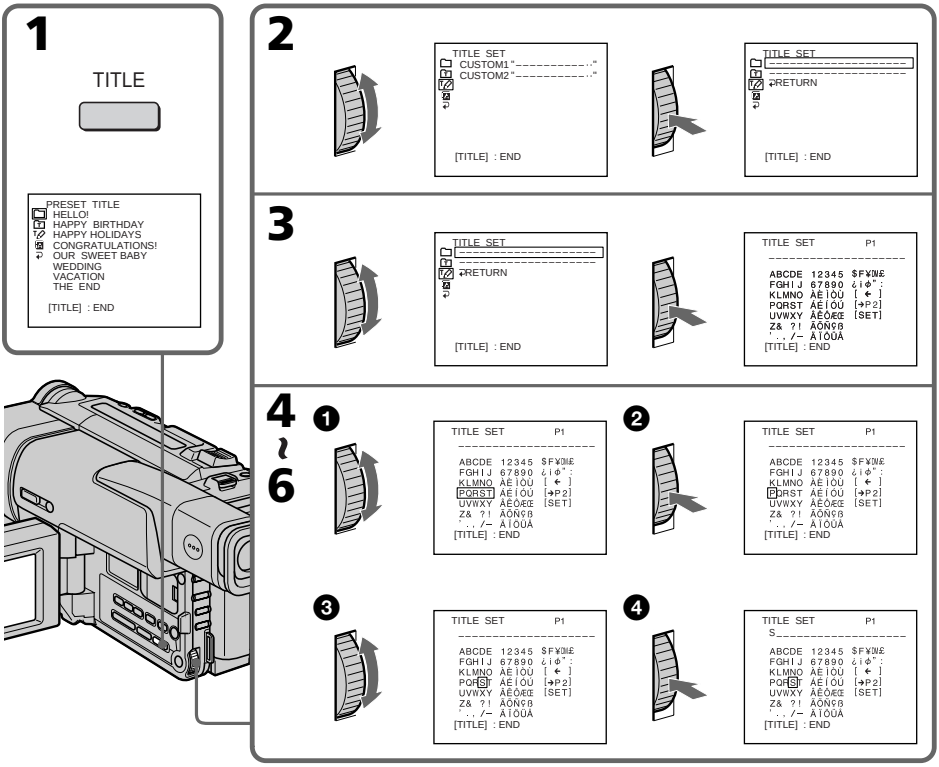
(4) Turn the SEL/PUSH EXEC dial to select the column of the desired character, then press the dial.

(5) Turn the SEL/PUSH EXEC dial to select the desired character, then press the dial.

(6) Repeat steps 4 and 5 until you have selected all characters and completed the title.

(7) To finish making your own titles, turn the SEL/PUSH EXEC dial to select [SET], then press the dial. The title is stored in memory.

(8) Press TITLE to make the title menu disappear.



To change a title you have stored

In step 3, select CUSTOM1 or CUSTOM2, depending on which title you want to change, then press the SEL/PUSH EXEC dial. Turn the SEL/PUSH EXEC dial to select [←], then press the dial to delete the title. The last character is erased. Enter the new title as desired.

If you take 5 minutes or longer to enter characters in the standby mode while a cassette is in your camcorder

The power automatically goes off. The characters you have entered remain stored in memory. Turn STANDBY down once and then up again, then proceed from step 1. We recommend setting the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

If you select [→P2]

The menu for selecting alphabet and Russian characters appear. Select [→P1] to return to the previous screen.

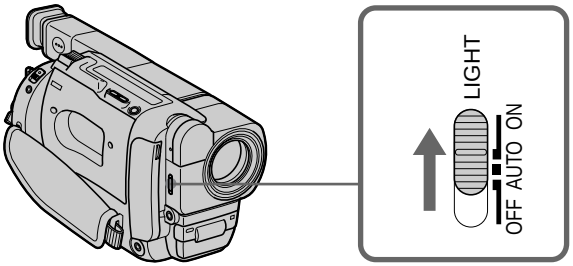
To delete the title

Select [←]. The last character is erased.

Using the built-in light

You can use the built-in light to suit your shooting situation. The recommended distance between the subject and camcorder is about 5 feet (1.5 m).

Slide LIGHT to ON while your camcorder is in the standby mode. The built-in light turns on.
The built-in light turns on/off by turning STANDBY to STANDBY/LOCK.



To turn off the built-in light

Slide LIGHT to OFF.

To turn on the built-in light automatically

Slide LIGHT to AUTO.
The built-in light automatically turns on and off according to the ambient brightness. However, the built-in light automatically turns off if the built-in light turns on for more than about 5 minutes. In this case, turn STANDBY down once and up again.

CAUTION

Be careful not to touch the lighting section, because the plastic window and surrounding surfaces are hot while the light is on. It remains hot for a while after the light is turned off.

DANGER

Not to be handled by children.
Emits intense heat and light.
Use with caution to reduce the risk of fire or injury to persons.
Do not direct light at persons or materials from less than 4 feet (1.22 m) during use and until cool.
Slide LIGHT to OFF when not in use.

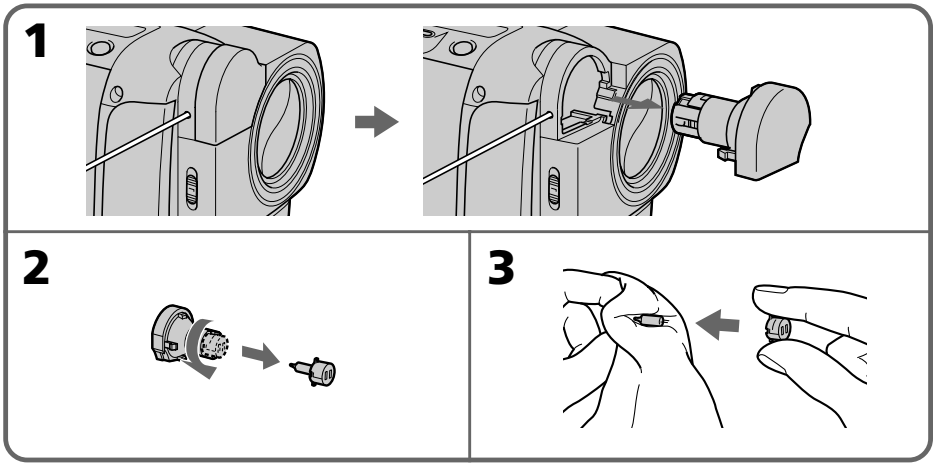
Notes

- The battery pack is quickly discharging while the built-in light is turned on. Slide LIGHT to OFF when not in use.
- When you do not use your camcorder, slide LIGHT to OFF and remove the battery pack to avoid turning on the built-in light.
- When flickering occurs while shooting in the auto mode, slide LIGHT to ON.
- The built-in light may turn on/off when you use the PROGRAM AE or backlight function while shooting in the auto mode.
- The built-in light may be turned off when inserting or ejecting a cassette.
- While the end search function is working, the built-in light is turned off.

Replacing the bulb

Use the Sony XB-3D halogen lamp (not supplied). The supplied halogen lamp is not on the market. Purchase the Sony XB-3D halogen lamp.
Remove the power source before replacing the bulb.

(1) Remove the built-in light unit while pushing the hole under the built-in light unit using a wire.
(2) Turn the bulb housing counterclockwise and detach from the built-in light unit.
(3) Replace the bulb using a dry cloth.
(4) Attach the bulb housing turning it clockwise, then replace the built-in light unit.



CAUTION

- When replacing the bulb, use only the Sony XB-3D halogen lamp (not supplied) to reduce the risk of fire.
- To prevent possible burn hazard, disconnect the power source before replacing and do not touch the bulb until the bulb becomes cool enough to handle (for about 30 minutes or more).

Note

To prevent the bulb from being smudged with finger prints, handle it with a dry cloth, etc. If the bulb is smudged, wipe it completely.

Playing back a tape with digital effects

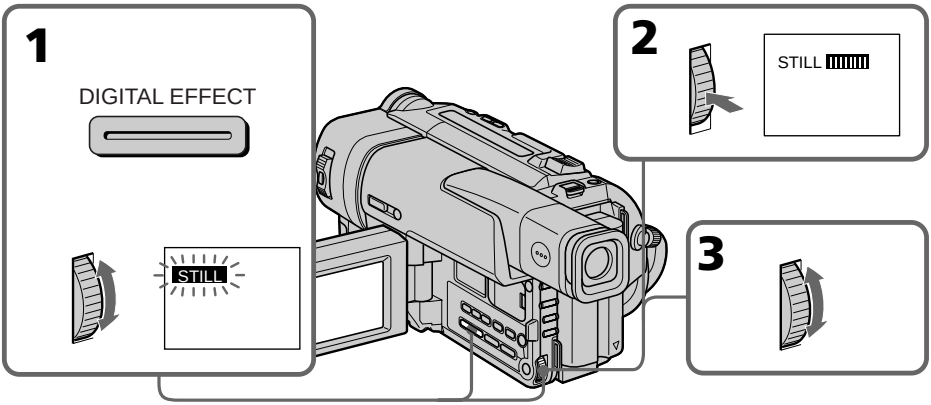
– CCD-TRV87 only

During playback, you can process a scene using the digital effect functions: STILL, FLASH, LUMI. and TRAIL.

(1) During playback, press DIGITAL EFFECT and turn the SEL/PUSH EXEC dial until the desired digital effect indicator (STILL, FLASH, LUMI. or TRAIL) flashes.

(2) Press the SEL/PUSH EXEC dial.
The digital effect indicator lights up and the bars appear. In the STILL or LUMI. mode, the picture where you press the SEL/PUSH EXEC dial is stored in memory as a still picture.

(3) Turn the SEL/PUSH EXEC dial to adjust the effect.
For details of each digital effect function, see page 38.



To cancel the digital effect function

Press DIGITAL EFFECT.

Notes

- You cannot process externally input scenes using the digital effect function.
- To record pictures that you have processed using the digital effect function, record the pictures on the VCR.

STILL and LUMI. modes

- You can search a picture to image-process by pressing ▶▶ or ◀◀ in the playback mode. However, noise appears on the picture.
- You cannot delete a picture stored in memory even if you stop playing back a tape.

When you set the POWER switch to OFF (CHARGE)

The digital effect function is automatically canceled.

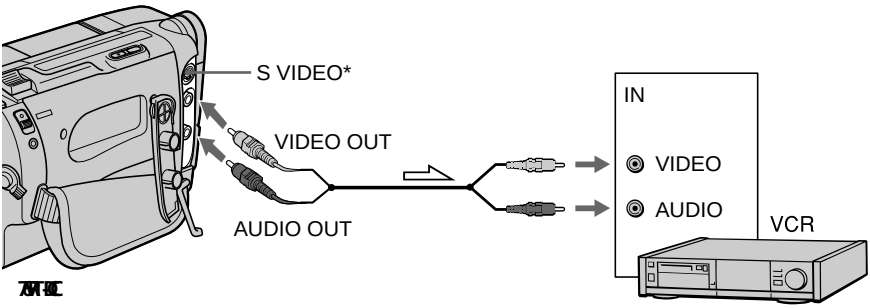
Dubbing a tape

Using the A/V connecting cable or S video connecting cable (not supplied)

Connect your camcorder to the VCR using the A/V connecting cable supplied with your camcorder.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Set the input selector on the VCR to LINE.
Refer to the operating instructions of your VCR for more information.
(3) Set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67).
(4) Play back the recorded tape on your camcorder.
(5) Start recording on the VCR.
Refer to the operating instructions of your VCR for more information.

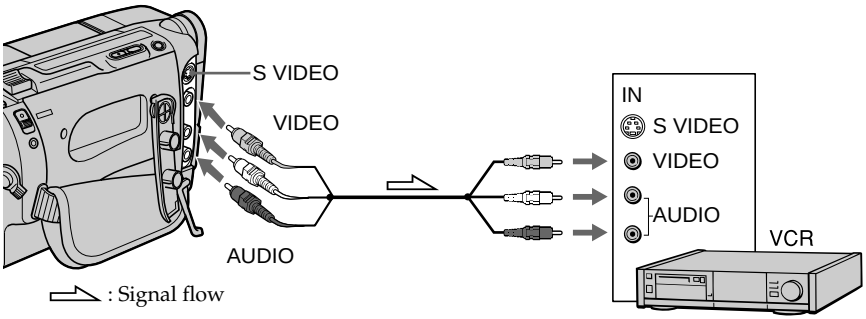
CCD-TRV17/TRV37/TRV57/TRV67



: Signal flow

* CCD-TRV67 only

CCD-TRV87



: Signal flow

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

To prevent deterioration of pictures from dubbing

Set EDIT to ON in the menu settings before dubbing.

If you have displayed the screen indicators on the TV
Make the indicators disappear by pressing DISPLAY so that they will not be superimposed on the edited tape.

You can edit on VCRs that support the following systems
8 mm, Hi8, Digital8, VHS, S-VHS, VHSC, S-VHSC, Betamax, ED Betamax, mini DV or DV

If your VCR is a monaural type (CCD-TRV87 only)
Connect the yellow plug for video and the white plug for audio on both your camcorder and the VCR. You do not connect the red plug. With this connection, the sound will be monaural.

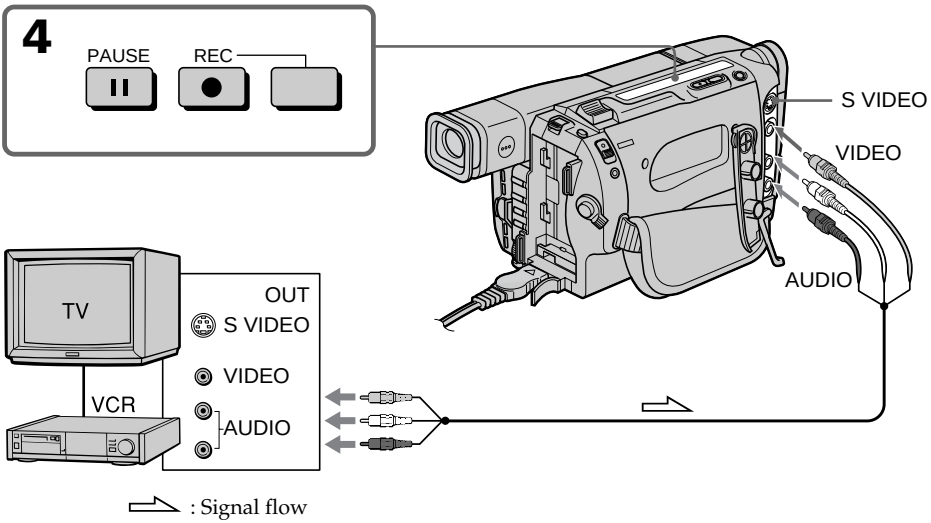
Connect using an S video cable (not supplied) to obtain high-quality pictures (CCD-TRV67/TRV87 only)
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (not supplied) to the S video jacks of both your camcorder and the VCR.

Recording video or TV programs

– CCD-TRV87 only

You can record a tape from another VCR or a TV program from a TV that has video/audio outputs. Use your camcorder as a recorder. Turn down the volume of your camcorder while editing. Otherwise, the picture may be distorted.

(1) Insert a blank tape (or a tape you want to record over) into your camcorder. If you are recording a tape from the VCR, insert a recorded tape into the VCR.
(2) Set the POWER switch to VTR.
(3) Set DISPLAY to LCD in the menu settings (p. 55). The picture from a TV or VCR appears in the viewfinder or on the LCD screen.
(4) Press ●REC and the button on its right simultaneously on your camcorder, then immediately press ❚❚ on your camcorder.
(5) Press ► on the VCR to start playback if you are recording a tape from VCR. Select a TV program if you are recording from TV.
(6) Press ❚❚ on your camcorder at the scene where you want to start recording from.



Note

You cannot record dual sound broadcasts.

If your VCR is a monaural type

Connect the yellow plug for video and the white plug for audio on both your camcorder and the VCR (you do not connect the red plug). With this connection, the sound will be monaural.

Connect using an S video cable (not supplied) to obtain high-quality pictures

With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (not supplied) to the S video jacks of both your camcorder and VCR.

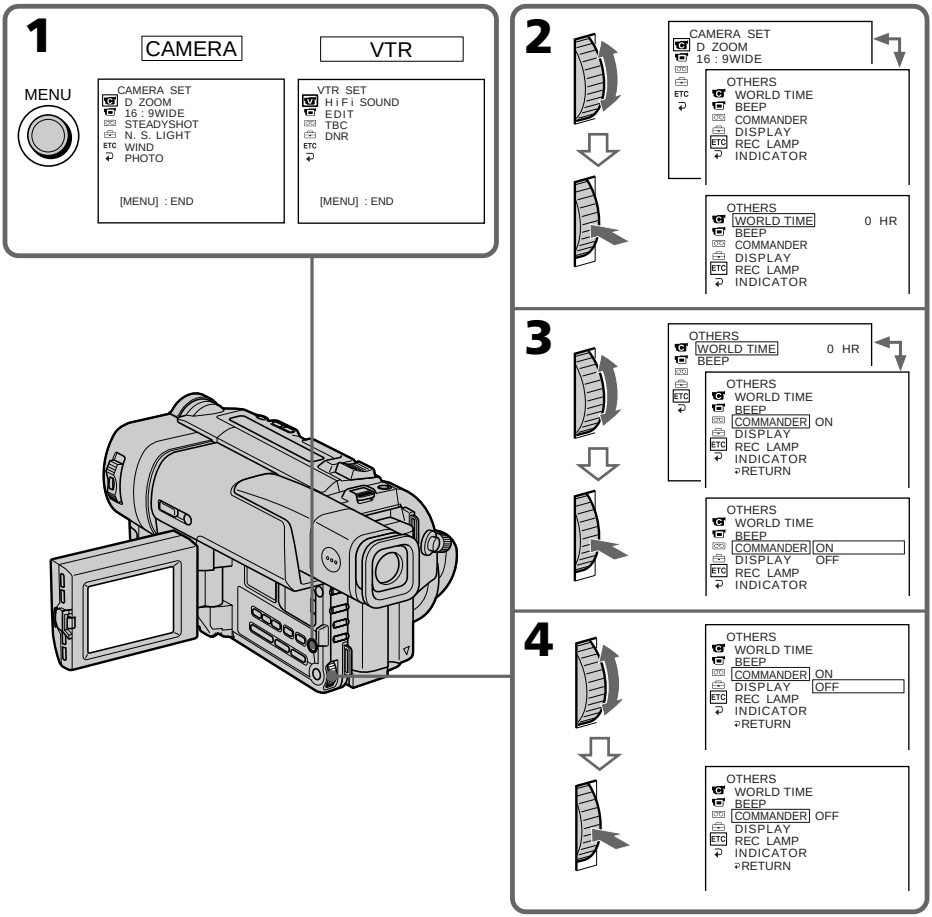
If your VCR or TV does not have an S VIDEO OUT jack

Do not connect an S video cable (not supplied) to your camcorder. If you connect an S video cable, the picture may not appear on screen.

Changing the menu settings

To change the mode settings in the menu settings, select the menu items with the SEL/PUSH EXEC dial. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.

(1) In the standby or VTR (CCD-TRV87)/PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) mode, press MENU.
(2) Turn the SEL/PUSH EXEC dial to select the desired icon, then press the dial to set.
(3) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial to set.
(4) Turn the SEL/PUSH EXEC dial to select the desired mode, and press the dial to set.
(5) If you want to change other items, select ↩ RETURN and press the dial, then repeat steps from 2 to 4.
For details, see "Selecting the mode setting of each item" (p. 56).



To make the menu display disappear

Press MENU.

Menu items are displayed as the following icons:

- CAMERA SET
- VTR SET (CCD-TRV87 only)
- PLAYER SET (CCD-TRV17/TRV37/TRV57/TRV67 only)
- LCD SET
- TAPE SET
- SETUP MENU
- OTHERS

Depending on your camcorder model

The menu display may be different from that in this illustration.

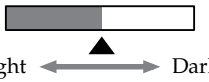
Selecting the mode setting of each item

●=the default setting.

Menu items differ according to whether the POWER switch is set to VTR (CCD-TRV87)/PLAYER(CCD-TRV17/TRV37/TRV57/TRV67) or CAMERA.
The LCD screen shows only the items you can operate at the moment.

Icon/item	Mode	Meaning	POWER switch
D ZOOM	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	CAMERA
	40× 80×	If you set to 40×/80×, digital zoom is activated and more than 20× to 40×/80× is performed digitally. (p. 18) (CCD-TRV17 only)	
	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	
	40× 200×	If you set to 40×/200×, digital zoom is activated and more than 20× to 40×/200× is performed digitally. (p. 18) (CCD-TRV37 only)	
	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	
	40× 360×	If you set to 40×/360× , digital zoom is activated and more than 20× to 40×/360× is performed digitally. (p. 18) (CCD-TRV57/TRV67/TRV87 only)	
16:9WIDE	● OFF	—	CAMERA
	CINEMA	To record in the CINEMA mode (p. 32)	
	16:9FULL	To record in the 16:9FULL mode	
STEADYSHOT (CCD-TRV57/TRV67/TRV87 only)	● ON	To compensate for camera-shake	CAMERA
	OFF	To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	
N.S.LIGHT	● ON	To use the NightShot Light function (p. 21)	CAMERA
	OFF	To cancel the NightShot Light function	
WIND (CCD-TRV87 only)	● OFF	—	CAMERA
	ON	To reduce wind noise when recording in strong wind	
PHOTO (CCD-TRV87 only)	● NORMAL	To activate the normal photo function	CAMERA
	FADE	To activate the fade photo function	
	SHUTTER	To activate the shutter photo function	

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
HiFi SOUND (CCD-TRV87 only)	● STEREO	To play back a stereo tape or dual sound track tape	VTR
	1	To play back a monaural tape or dual sound track tape with main sound	
	2	To play back a dual sound track tape with sub sound	
EDIT	● OFF	—	VTR/PLAYER
	ON	To minimize picture deterioration when editing	
TBC	● ON	To correct jitter	VTR/PLAYER
	OFF	To not correct jitter. Set TBC to OFF when playing back a tape on which you have dubbed over and recorded the signal of a TV game or similar machine.	
TBC stands for "Time Base Corrector".			
DNR	● ON	To reduce picture noise	VTR/PLAYER
	OFF	To reduce a conspicuous afterimage when the picture has a lot of movement	
DNR stands for "Digital Noise Reduction".			
LCD B. L.	● BRT NORMAL	To set the brightness on the LCD screen normal	VTR/PLAYER CAMERA
	BRIGHT	To brighten the LCD screen	
LCD COLOR		To adjust the color on the LCD screen 	VTR/PLAYER CAMERA

Notes on the SteadyShot function (CCD-TRV57/TRV67/TRV87 only)

- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (not supplied) may influence the SteadyShot function.
- SteadyShot does not operate in the 16:9FULL mode. If you set STEADYSHOT to ON in the menu settings, the indicator flashes.

If you cancel the SteadyShot function (CCD-TRV57/TRV67/TRV87 only)

The SteadyShot off indicator appears. Your camcorder prevents excessive compensation for camera-shake.

In more than 5 minutes after removing the power source

The "WIND" (CCD-TRV87 only) "COMMANDER" (CCD-TRV57/TRV67/TRV87 only), "EDIT" and "HiFi SOUND" (CCD-TRV87 only) items are returned to their default settings.
The other menu items are held in memory even when the battery is removed, as long as the lithium battery is installed.

Note on LCD B.L.

When you use power sources other than the battery pack, "BRIGHT" is automatically selected.

Icon/item	Mode	Meaning	POWER switch
REC MODE	● SP	To record in SP (Standard Play) mode	VTR CAMERA
	LP	To increase the recording time to twice the SP mode	
ORC TO SET		To automatically adjust the recording condition to get the best possible recording. Press START/STOP to start adjustment. Your camcorder takes about 10 seconds to check the tape condition and then returns to the standby mode.	CAMERA
ORC stands for "Optimizing the Recording Condition".			
REMAIN	● AUTO	To display the remaining tape bar: • for about 8 seconds after your camcorder is turned on and calculates the remaining amount of tape • for about 8 seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape • for about 8 seconds after ► is pressed in VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) mode • for about 8 seconds after DISPLAY is pressed to display the screen indicators • for the period of tape rewinding, forwarding or picture search in the VTR (CCD-TRV87) or PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) mode	VTR/PLAYER CAMERA
	ON	To always display the remaining tape bar	

Notes on the LP mode

- When you record a tape in the LP mode on your camcorder, we recommend playing the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in pictures or sound.
- Noise may occur also when you play on your camcorder tapes recorded in the LP mode on other camcorders or VCRs.
- When you record a tape in the LP mode on your camcorder, recording is carried out in the standard 8 mm system. (CCD-TRV67/TRV87 only)

Notes on ORC setting

- Each time you eject the cassette, the ORC setting will be canceled. If necessary, reset the setting.
- You cannot use this setting on a tape with the red mark on the cassette exposed. (i. e. the tape is write-protected)
- When you set ORC TO SET, a non-recorded section of about 0.1 seconds appears on the tape. However, note that this non-recorded section disappears from the tape when you continue recording from this section.
- To check if you have already set the ORC setting, select ORC TO SET in the menu settings. "ORC ON" is displayed if ORC TO SET is already set.

Icon/item	Mode	Meaning	POWER switch
CLOCK SET		To reset the date or time (p. 61)	CAMERA
AUTO DATE	● ON	To record the date for 10 seconds after recording has started	CAMERA
	OFF	To cancel the auto date function	
AUTO TV ON (CCD-TRV87 only)	● OFF	—	VTR CAMERA
	ON	To automatically turn on the Sony TV when using the super laser link function (p. 29)	
TV INPUT (CCD-TRV87 only)	● VIDEO1 VIDEO2 VIDEO3	To switch the video input on a Sony TV when using the super laser link function (p. 29)	VTR CAMERA
	OFF	—	
LTR SIZE	● NORMAL	To display selected menu items in normal size	VTR/PLAYER CAMERA
	2×	To display selected menu items at twice the normal size	
DEMO MODE	● ON	To make the demonstration appear	CAMERA
	OFF	To cancel the demonstration mode	

Notes on DEMO MODE

- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- DEMO MODE is set to STBY (Standby) at the factory and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted.
  To cancel the demonstration, insert a cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF.
- When NIGHTSHOT is set to ON, the NIGHTSHOT indicator appears in the viewfinder or on the LCD screen and you cannot select DEMO MODE in the menu settings.

Icon/item	Mode	Meaning	POWER switch
ETC **WORLD TIME**		To set the clock to the local time. Turn the SEL/PUSH EXEC dial to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA
BEEP	● MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	VTR/PLAYER CAMERA
	NORMAL	To output the beep sound instead of the melody	
	OFF	To cancel the melody and beep sound	
COMMANDER (CCD-TRV57/TRV67/TRV87 only)	● ON	To activate the Remote Commander supplied with your camcorder	VTR/PLAYER CAMERA
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control	
DISPLAY	● LCD	To show the display on the LCD screen and viewfinder	VTR/PLAYER CAMERA
	V-OUT/LCD	To show the display on the TV screen, LCD screen and viewfinder	
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder	CAMERA
	OFF	To turn the camera recording lamp off so that the subject is not aware of the recording	
INDICATOR (CCD-TRV87 only)	● BL OFF	To turn off the backlight on display window	VTR CAMERA
	BL ON	To turn on the backlight	

Note (CCD-TRV87 only)

If you press DISPLAY with "DISPLAY" set to "V-OUT/LCD" in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

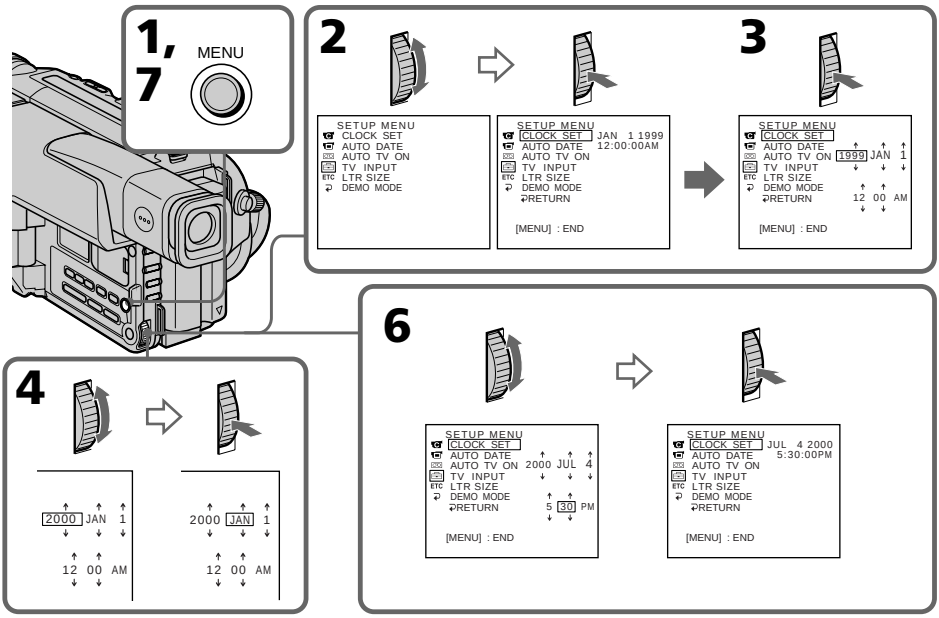
Notes on INDICATOR (CCD-TRV87 only)

- When you select "BL ON", battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, "BL ON" is automatically selected.

Resetting the date and time

The default clock setting is set to East Coast Standard Time.
The date and time are held in memory by the lithium battery. If you replace the lithium battery with the battery pack or other power source connected, you need not reset the date and time.
You must reset the date and time when the lithium battery becomes dead with no power source installed.
First, set the year, then the month, the day, the hour and then the minute.

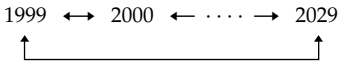
(1) While your camcorder is in the standby mode, press MENU to display the menu.
(2) Turn the SEL/PUSH EXEC dial to select 🧰, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select CLOCK SET, then press the dial.
(4) Turn the SEL/PUSH EXEC dial to adjust the desired year, then press the dial.
(5) Set the month, day and hour by turning the SEL/PUSH EXEC dial and pressing the dial.
(6) Set the minute by turning the SEL/PUSH EXEC dial and pressing the dial by the time signal. The clock starts to move.
(7) Press MENU to make the menu disappear. The time indicator appears.



To check the preset date and time

Press DATE to display the date indicator.
Press TIME to display the time indicator.
Press DATE (or TIME) and then press TIME (or DATE) to simultaneously display the date and time indicator.
Press DATE and/or TIME again. The date and/or time indicator disappears.

The year changes as follows:



Auto date function

When you use your camcorder for the first time, turn it on and reset the date and time to your time before you start recording (p. 61). The date is automatically recorded for 10 seconds after you start recording **(Auto date function)**. This function works only once a day.

Note on the time indicator

The internal clock of your camcorder operates on a 12-hour cycle.
- 12:00 AM stands for midnight.
- 12:00 PM stands for noon.

Note on the auto date function

You can change the AUTO DATE setting by selecting ON or OFF in the menu settings.
The auto date function automatically displays the date once a day.
However, the date may automatically appear more than once a day if:
– you reset the date and time.
– you eject and insert the tape again.
– you stop recording within 10 seconds.
– you set AUTO DATE to OFF once and set it back ON in the menu settings.

Usable cassettes and playback modes

Selecting the cassette type

– CCD-TRV67/TRV87 only

You can use both Hi8 and standard 8 mm video cassettes on your camcorder. When you use a Hi8 video cassette, recording and playback are carried out in the Hi8 system.
When you use a standard 8 mm video cassette, recording and playback are carried out in the standard 8 mm system.
However, if you record on a Hi8 video cassette in the LP mode, recording is carried out in the standard 8 mm system.
If you play back a tape recorded on a different video recorder on your camcorder, the playback mode is automatically selected according to the format in which the tape has been recorded.

This Hi8 system is an extension of the standard 8 mm system, and was developed to produce higher quality pictures.
You cannot playback a tape recorded in the Hi8 system correctly on video recorder / players other than a Hi8 video recorder / player.

What is Video 8 XR/video Hi8 XR ?

– CCD-TRV17/TRV37/TRV57/TRV87 only

"Video 8 XR" / "video Hi8 XR" is a function that further enhances the image quality of Video 8 / video Hi8. This function allows you to record and playback pictures with clearer details.
Video tapes recorded on a camcorder having the "XR" function show excellent picture quality when they are played back on an "XR" camcorder.
The playback quality will be the normal quality of the standard 8mm / Hi8 camcorder when video tapes recorded on an "XR" camcorder are played back by a conventional standard 8mm / Hi8 camcorder or when video tapes recorded on a conventional standard 8mm / Hi8 camcorder are played back on the "XR" camcorder.
* "XR" stands for "Extended Resolution."

When you play back

The playback mode (SP / LP) and system, Hi8 or standard 8 mm (CCD-TRV67 / TRV87 only) are automatically selected according to the format in which the tape has been recorded. The quality of the recorded picture in the LP mode, however, will not be as good as the SP mode.

Note on AFM HiFi stereo

– CCD-TRV87 only

When you play back a tape, the sound will be monaural if:
- You record the tape on your camcorder, then play it back on an AFM HiFi monaural video recorder / player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on your camcorder.

Foreign 8 mm video

Because TV color systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to "Using your camcorder abroad" to check the TV color systems used in foreign countries.

Copyright signal

When you record

– CCD-TRV87 only

You cannot record software on your camcorder that contains copyright control signals for copyright protection of software.
"COPY INHIBIT" appears on the LCD screen, in the viewfinder or on the TV screen if you try to record such software.
Your camcorder does not record copyright control signals on the tape when it records.

When you play back a dual sound track tape

– CCD-TRV87 only

When you play back a dual sound track tape recorded in an AFM HiFi stereo system, set "HiFi SOUND" to the desired mode in the menu settings (p. 55).

Sound from speaker

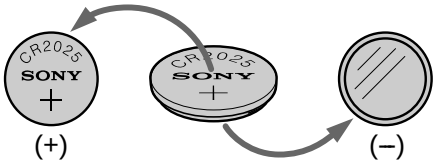
HiFi Sound Mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Monaural	Main sound
2	Unnatural sound	Sub sound

You cannot record dual sound programs on your camcorder.

Changing the lithium battery in your camcorder

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu settings hold in memory by the lithium battery.

Insert the battery with the positive (+) side facing out. When the battery becomes weak or dead, the ⚠ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of any other battery may present a risk of fire or explosion.** Discard used batteries according to the manufacturer's instructions.



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, nor dispose of it in fire.

Lithium battery

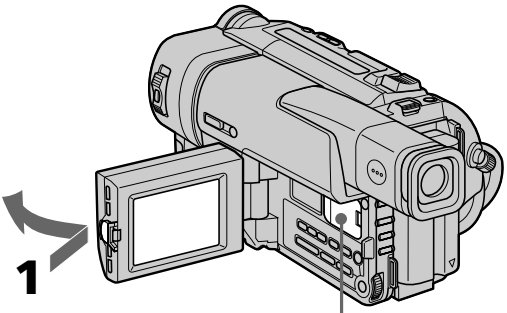
- Keep the lithium battery out of the reach of children.
- Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to ensure good contact.

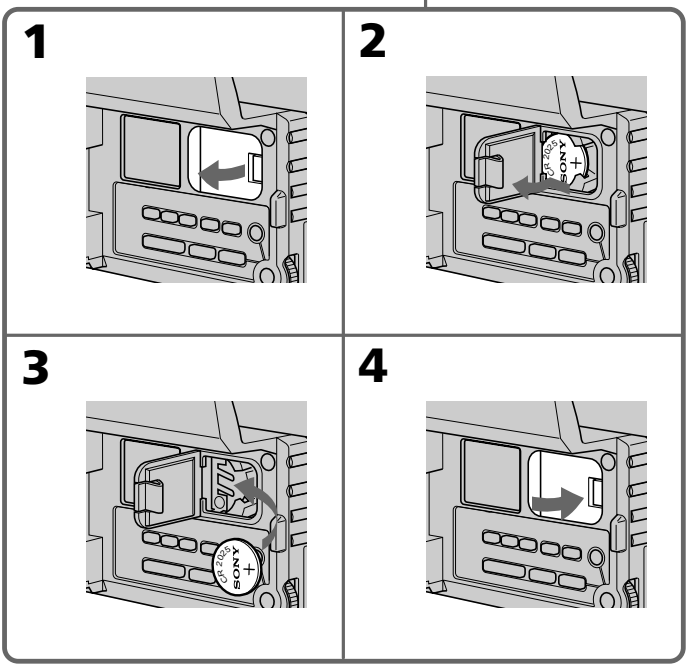
Lithium battery installed at the factory

This battery may not last 1 year.

Changing the lithium battery

(1) Open the LCD panel and open the lid of the lithium battery compartment.
(2) Push the lithium battery down once and pull it out from the holder.
(3) Install a Sony CR2025 or Duracell DL-2025 lithium battery with the positive (+) side facing out.
(4) Close the lid.





Troubleshooting

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorized Sony service facility. If "C: □□:□□" appears on the LCD screen or in the viewfinder, the self-diagnosis display function has worked. See page 70.

In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	• The POWER switch is set to OFF (CHARGE) or VTR (CCD-TRV87)/PLAYER (CCD-TRV17/TRV37/TRV57/TRV67). → Set it to CAMERA. (p. 16) • STANDBY is set to LOCK. → Turn STANDBY to STANDBY. (p. 16) • The tape has run out. → Rewind the tape or insert a new one. (p. 15, 24) • The write-protect tab is set to expose the red mark. → Use a new tape or slide the tab. (p. 15) • The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73)
The power goes off.	• While being operated in the CAMERA mode, your camcorder has been in the standby mode for more than 5 minutes. → Turn STANDBY down once and then up again. (p. 16)
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 19)
The SteadyShot function does not work. (CCD-TRV57/TRV67/TRV87 only)	• STEADYSHOT is set to OFF in the menu settings. → Set it to ON. (p. 55) • The SteadyShot function does not work when the wide mode is set to 16:9FULL.
The autofocusing function does not work.	• FOCUS is set to MANUAL. → Set it to AUTO. (p. 44) • Shooting conditions are not suitable for autofocus. → Set FOCUS to MANUAL to focus manually. (p. 44)
The fader function does not work. (CCD-TRV87 only)	• The digital effect function is working. → Cancel it. (p. 38)
The ⊗ indicator flashes in the viewfinder.	• The video heads may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 74)
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel. (p. 17)
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	• The contrast between the subject and background is too high. This is not a malfunction.
A vertical band appears when you shoot a very bright subject.	• This is not a malfunction.

(Continued on the following page)

Symptom	Cause and/or Corrective Actions
Some tiny white spots appear in the viewfinder or on the LCD screen. (CCD-TRV87 only)	• Slow shutter, low lux or Super NightShot mode is activated. This is not a malfunction.
An unknown picture is displayed in the viewfinder or on the LCD screen.	• If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette inserted, your camcorder automatically starts the demonstration. → Insert a cassette and the demonstration stops. You can also cancel DEMO MODE. (p. 59)
The picture is recorded in incorrect or unnatural colors.	• NIGHTSHOT is set to ON. → Set it to OFF. (p. 21)
Picture appears too bright, and the subject does not appear in the viewfinder or on the LCD screen.	• NIGHTSHOT is set to ON in a bright place. → Set it to OFF, or use the NightShot function in a dark place. (p. 21)

In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	• The POWER switch is set to CAMERA or OFF (CHARGE). → Set it to VTR (CCD-TRV87)/PLAYER (CCD-TRV17/TRV37/TRV57/TRV67). (p. 24) • The tape has run out. → Rewind the tape. (p. 24)
The playback picture is not clear or does not appear.	• The television's video channel is not adjusted correctly. → Adjust it. (p. 27) • EDIT is set to ON in the menu settings. → Set it to OFF. (p. 55) • The video head may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 74)
No sound or only a low sound is heard when playing back a tape.	• The stereo tape is played back with HiFi SOUND set to 2 in the menu settings (CCD-TRV87 only). → Set it to STEREO. (p. 55) • The volume is turned to minimum. → Turn up the volume. (p. 24)
The sound is muted or images do not appear when monitoring the picture from TV on the LCD screen. (CCD-TRV87 only)	→ Pull out A/V connecting cable from AUDIO/VIDEO jack, then connect it again.

In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack. (p. 9, 10) • The AC power adaptor is not connected to a wall outlet. → Connect the AC power adaptor to a wall outlet. (p. 4, 14)
The end search function does not work.	• The tape was ejected after recording. • You have not recorded on the new cassette yet.

Symptom	Cause and/or Corrective Actions
The battery pack is quickly discharged.	• The operating temperature is too low. • The battery pack is not fully charged. → Charge the battery pack again. (p. 10) • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 9)
The battery remaining indicator does not indicate the correct time.	• You have used the battery pack in an extremely hot or cold environment for a long time. • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 9) • The battery is dead. → Use a charged battery pack. (p. 9, 10)
The power goes off although the battery remaining indicator indicates that the battery pack has enough power to operate.	→ Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.
The cassette cannot be removed from the holder.	• The power source is disconnected. → Connect it firmly. (p. 9, 14) • The battery is dead. → Use a charged battery pack. (p. 9, 10)
The ⊡ and ⏏ indicators flash and no functions except for cassette ejection work.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73)

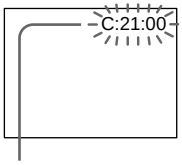
Others

Symptom	Cause and/or Corrective Actions
The Remote Commander supplied with your camcorder does not work. (CCD-TRV57/TRV67/TRV87 only)	• COMMANDER is set to OFF in the menu settings. → Set it to ON. (p. 55) • Something is blocking the infrared rays. → Remove the obstacle. • The batteries inserted in the battery holder with the + – polarities incorrectly matching the + – marks. → Insert the batteries with the correct polarity. (p. 84) • The batteries are dead. → Insert new ones. (p. 84)
The date or time indicator does not appear, and the bars "--:--:--" appear.	• Reset the date and time. (p. 61)
The picture from a TV or VCR does not appear even when your camcorder is connected to outputs on the TV or VCR. (CCD-TRV87 only)	• DISPLAY is set to V-OUT/LCD in the menu settings. → Set it to LCD. (p. 55)
The melody or beep sounds for 5 seconds.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73) • Some troubles has occurred in your camcorder. → Remove the cassette and insert it again, then operate your camcorder.
While charging the battery pack, no indicator appears or the indicator flashes in the display window.	• The AC power adaptor is disconnected. → Connect it firmly. (p. 10) • Something is wrong with the battery pack. → Contact your Sony dealer or local authorized Sony service facility.

Self-diagnosis display

Your camcorder has a self-diagnosis display function.
This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) in the viewfinder, on the LCD screen or in the display window. If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

Viewfinder (or LCD screen)



Self-diagnosis display

- C:□□:□□
  You can service your camcorder yourself.
- E:□□:□□
  Contact your Sony dealer or local authorized Sony facility.

Five-digit display	Cause and/or Corrective Actions
C:04:□□	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. ➔ Use an "InfoLITHIUM" battery pack. (p. 14)
C:21:□□	• Moisture condensation has occurred. ➔ Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73)
C:22:□□	• The video heads are dirty. ➔ Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 74)
C:31:□□ C:32:□□	• A malfunction other than the above that you can service has occurred. ➔ Remove the cassette and insert it again, then operate your camcorder. ➔ Disconnect the power cord of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.
E:61:□□ E:62:□□	• A malfunction that you cannot service has occurred. ➔ Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code. (example: E:61:10)

If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

Warning indicators and messages

If indicators and messages appear in the viewfinder, on the LCD screen or in the display window, check the following:
See the page in parentheses "( )" for more information.
The indicators and messages are displayed in yellow.

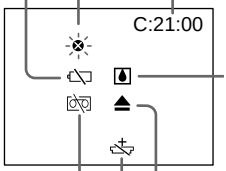
Warning indicators

The video heads are dirty
Slow flashing:
• You need to clean the heads using the Sony V8-25CLD cleaning cassette (not supplied) (p. 74).

The battery is dead or nearly dead
Slow flashing:
• The battery is nearly dead.

Fast flashing:
• The battery is dead (p. 10)
• The battery is completely dead, and cannot be recharged.

Depending on conditions, the indicator may flash, even if there are 5 to 10 minutes remaining.



Self-diagnosis display (p. 70)

Moisture condensation has occurred*
Fast flashing:
• Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open (p. 73).

Warning indicator as to tape
Slow flashing:
• The tape is near the end.
• No tape is inserted (p. 15).*
• The write-protect tab on the cassette is out (red) (p. 15).*

Fast flashing:
• The tape has run out (p. 15, 24).*

You need to eject the cassette
Slow flashing:
• The write-protect tab on the cassette is out (red) (p. 15).*

Fast flashing:
• Moisture condensation has occurred (p. 73).
• The tape has run out (p. 15, 24).*
• The self-diagnosis display function is activated (p. 70).*

The lithium battery is weak or is not installed (p. 65)

Warning messages

• CLOCK SET	Reset the date and time. (p. 61)
• For "InfoLITHIUM" BATTERY ONLY	Use an "InfoLITHIUM" battery pack. (p. 14)
• CLEANING CASSETTE	The video heads are dirty. (p. 74)
• START/STOP KEY	Press the START/STOP button to activate the ORC setting. This message is displayed in white. (p. 58)
• ORC	The ORC setting is working. This message is displayed in white. (p. 58)
• COPY INHIBIT	You tried to record a picture that has a copyright control signal. (CCD-TRV87 only) (p. 64)

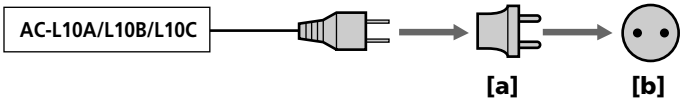
* You hear the melody or beep sound.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

When charging the battery pack, use a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet **[b]**.



Your camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV with VIDEO/AUDIO input jack. The following shows TV color systems used overseas.

NTSC system
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

SECAM system
Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 60 for more information.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the indicator flashes. When the ⏏ indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. Your camcorder can be used again if the indicator does not appear when the power is turned on again.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

- You bring your camcorder from a ski slope into a place warmed up by a heating device
- You bring your camcorder from an air-conditioned car or room into a hot place outside
- You use your camcorder after a squall or a shower
- You use your camcorder in a high temperature and humidity place

How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

Maintenance information

Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads. The video head may be dirty when:

- The ⊗ indicator and " CLEANING CASSETTE" message appear one after another or the ⊗ indicator flashes on the LCD screen or in the viewfinder.
- Playback pictures contain noise.
- Playback pictures are hardly visible.
- Playback pictures do not appear.

If this happens, clean the video heads with the Sony V8-25CLD cleaning cassette (not supplied).

[a] Slightly dirty
[b] Very dirty

Note on video heads

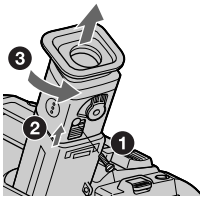
When the playback pictures are still contain noise even if you have cleaned the video heads with a cleaning cassette, the video heads may have worn down due to long use. If this is the case, they must be replaced with new heads. Contact your Sony dealer or local authorized Sony service facility.

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

Removing dust from inside the viewfinder

(1) ❶ Remove the screw with a screwdriver (not supplied). ❷ Then, while holding the RELEASE knob up, ❸ turn the eyecup in a counterclockwise direction and pull it out.
(2) Clean the surface with a commercially available blower for a still camera.
(3) Turn the eyecup in a clockwise direction, then replace the screw.



Caution

Do not remove any other screws. You may remove only the screw to remove the eyecup.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF (CHARGE) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

Built-in light

- Do not knock or jolt the built-in light while it is turned on as it may damage the bulb or shorten the life of the bulb.
- Do not leave the built-in light on while it is resting on or against something; it may cause a fire or damage the built-in light.

On handling tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.

Camcorder care

- Remove the tape, and periodically turn on the power, operate the CAMERA and VTR (CCD-TRV87)/PLAYER (CCD-TRV17/TRV37/TRV57/TRV67) sections and play back a tape for about 5 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

AC power adaptor

- Unplug the unit from the wall outlet when you are not using the unit for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  – Extremely hot or cold
  – Dusty or dirty
  – Very humid
  – Vibrating

Battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Notes on dry batteries

– CCD-TRV57/TRV67/TRV87 only

To avoid possible damage from battery leakage or corrosion, observe the following:

- Be sure to insert the batteries with the + – polarities matched to the + – marks.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- Current flows from batteries when you are not using them for a long time.
- Do not use leaking batteries.

If batteries are leaking

- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

Specifications

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
NTSC color, EIA standards
Usable cassette
8mm video format cassette
CCD-TRV17/TRV37/TRV57:
Standard 8
CCD-TRV67/TRV87: Hi8 or standard 8
Recording/playback time (using 120 min. cassette)
SP mode: 2 hours
LP mode: 4 hours
Fastforward/rewind time (using 120 min. cassette)
Approx. 5 min.
Viewfinder
Electric viewfinder (monochrome)
Image device
CCD-TRV17/TRV37:
1/6 inch CCD (Charge Coupled Device)
CCD-TRV57/TRV67/TRV87:
1/4 inch CCD (Charge Coupled Device)
CCD-TRV17/TRV37:
Approx. 270,000 pixels
(Effective: Approx. 250,000 pixels)
CCD-TRV57/TRV67:
Approx. 320,000 pixels
(Effective: Approx. 200,000 pixels)
CCD-TRV87:
Approx. 470,000 pixels
(Effective: Approx. 300,000 pixels)
Lens
Combined power zoom lens
Filter diameter 1 7/16 in. (37 mm)
CCD-TRV17:
20× (Optical), 80× (Digital)
CCD-TRV37:
20× (Optical), 200× (Digital)
CCD-TRV57/TRV67/TRV87:
20× (Optical), 360× (Digital)
Focal length
5/32 - 2 7/8 in. (3.6 - 72 mm)
When converted to a 35 mm still camera
CCD-TRV17/TRV37:
2 - 40 6/8 in. (51.8 -1036 mm)
CCD-TRV57/TRV67/TRV87:
1 5/8 - 32 3/8 in. (41 - 820 mm)
Color temperature
Auto
Minimum illumination
CCD-TRV17/TRV37:
1 lux (F 1.4)
CCD-TRV57/TRV67:
0.4 lux (F 1.4)
CCD-TRV87:
0.6 lux (F 1.4)
0 lux (in the NightShot mode)*
* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/output connectors

S video input (CCD-TRV87 only)/ output (CCD-TRV67/TRV87 only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced
Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced
Video input (CCD-TRV87 only)/ output
Phono jack, 1 Vp-p, 75 ohms, unbalanced
Audio input (CCD-TRV87 only)/ output
CCD-TRV17/TRV37/TRV57/TRV67:
Monaural, phone jack, 327 mV
CCD-TRV87:
Phono jacks (2: stereo L and R)
327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5V
Headphone jack (CCD-TRV87 only)
Stereo minijack (ø 3.5 mm)
Earphone jack (CCD-TRV17/ TRV37/TRV57/TRV67 only)
Monaural minijack (ø 3.5 mm)
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
CCD-TRV17/TRV37/TRV57/TRV67:
Monaural minijack (ø 3.5 mm)
CCD-TRV87:
Stereo minijack (ø 3.5 mm)

LCD screen

Picture
2.5 inches measured diagonally
2 × 1 1/2 in. (50.3 × 37.4 mm)
Total dot number
61,600 (280 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption (when using the battery pack)
During camera recording using LCD
CCD-TRV17/TRV37/TRV57/TRV67: 2.7W
CCD-TRV87: 2.8W
Viewfinder
CCD-TRV17/TRV37/TRV57/TRV67: 2.3W
CCD-TRV87: 2.4W
Operating temperature
32 °F to 104 °F (0 °C to 40 °C)
Storage temperature
–4 °F to +140 °F (–20 °C to +60 °C)
Dimensions (approx.)
4 1/8 × 4 1/4 × 8 3/8 in.
(102 × 106 × 212 mm) (w/h/d)
Mass (approx.)
1 lb 13 oz (850 g)
excluding the battery pack, lithium battery, cassette and shoulder strap
2 lb 2 oz (990 g)
including the battery pack NP-F330, lithium battery CR2025, cassette and shoulder strap
Supplied accessories
See page 8.

Specifications

AC power adaptor

Power requirements
100 - 240 V AC, 50/60 Hz
Power consumption
23 W
Output voltage
DC OUT: 8.4 V, 1.5 A in operating mode
Operating temperature
32 °F to 104 °F (0 °C to 40 °C)
Storage temperature
–4 °F to +140 °F (–20 °C to +60 °C)
Dimensions (approx.)
5 × 1 9/16 × 2 1/2 in.
(125 × 39 × 62 mm) (w/h/d)
excluding projecting parts
Mass (approx.)
9.8 oz (280 g)
excluding power cord

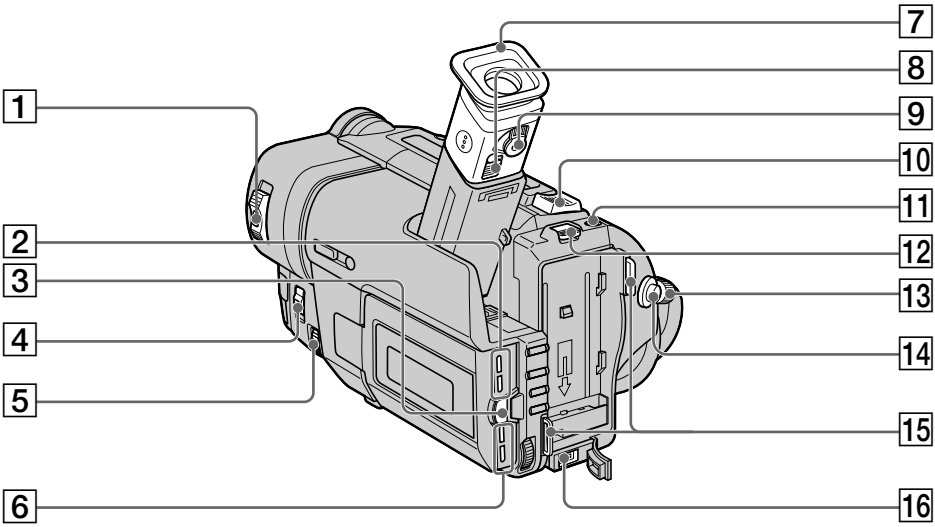
Battery pack

Output voltage
DC 7.2 V
Capacity
5.0 Wh
Dimensions (approx.)
1 9/16 × 13/16 × 2 7/8 in.
(38 × 21 × 71 mm) (w/h/d)
Mass (approx.)
3.4 oz (95 g)
Type
Lithium ion

Design and specifications are subject to change without notice.

Identifying the parts and controls

Camcorder



1 **POWER switch** (p. 16)

2 **LCD BRIGHT buttons** (p. 17)

3 **OPEN button** (p. 16)

4 **FOCUS switch** (p. 44)

5 **NEAR/FAR dial** (p. 44)

6 **VOLUME buttons** (p. 24)

7 **Eyecup** (p. 74)

8 **Eyecup RELEASE knob** (p. 74)

9 **Viewfinder lens adjustment lever** (p. 19)

10 **Power zoom lever** (p. 18)

11 **PHOTO button** (CCD-TRV87 only) (p. 30)

12 **BATT RELEASE lever** (p. 9)

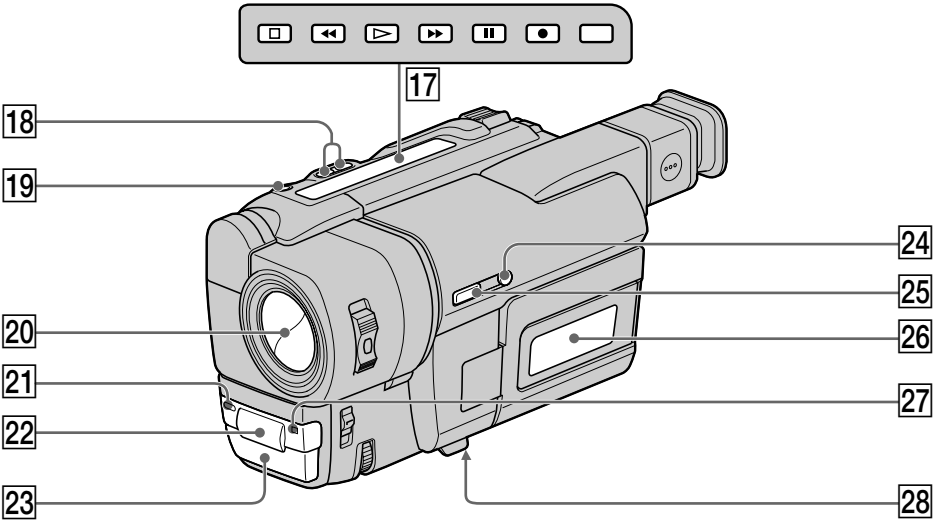
13 **STANDBY switch** (p. 16)

14 **START/STOP button** (p. 16)

15 **Hooks for shoulder strap** (p. 81)

16 **DC IN jack** (p. 4, 10)

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.



17 **Video control buttons** (p. 24, 26, 54)
■ STOP (stop)
◀◀ REW (rewind)
▶ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)
● REC (recording) (CCD-TRV87 only)

18 **EDITSEARCH button** (p. 23)

19 **S.LASER LINK button** (CCD-TRV87 only) (p. 39)

20 **Lens cover** (p. 16)

21 **Camera recording lamp** (p. 16)

22 **Infrared rays emitter** (p. 21, 28)

23 **Microphone**

24 **SUPER NIGHTSHOT button** (CCD-TRV87 only) (p. 21)

25 **NIGHTSHOT switch** (p. 21)

26 **Display window** (p. 85)

27 **Remote sensor** (CCD-TRV57/TRV67/TRV87 only) (p. 84)

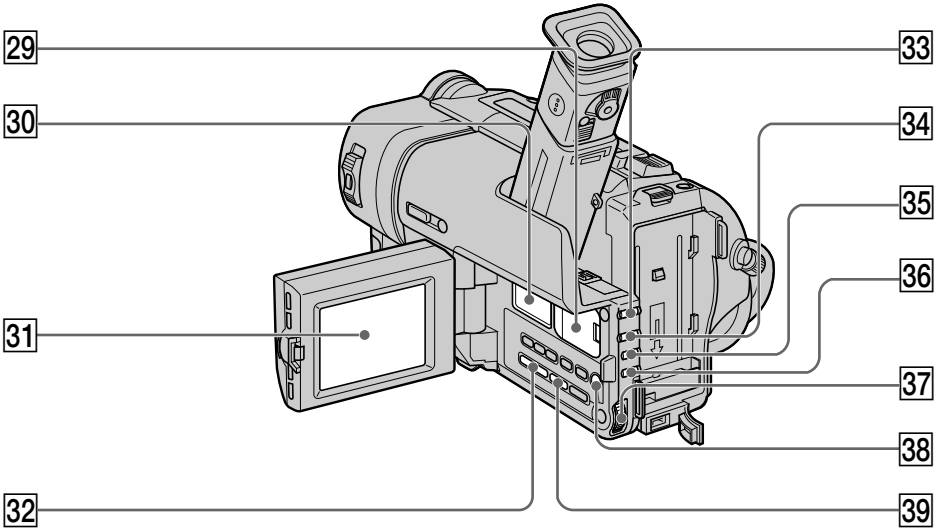
28 **Tripod receptacle** (base)
Make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

What is SUPER LASER LINK? (CCD-TRV87 only)
The SUPER LASER LINK system sends and receives pictures and sound between video equipment having the mark by using infrared rays.

Hi8 InfoLITHIUM SERIES SUPER LASER LINK

These are trademarks.

Identifying the parts and controls



29 **Lithium battery compartment** (p. 65)

30 **Speaker**

31 **LCD screen** (p. 17)

32 **DIGITAL EFFECT button** (CCD-TRV87 only) (p. 39)

33 **FADER button** (p. 35)

34 **BACK LIGHT button** (p. 20)

35 **PROGRAM AE button** (p. 42)

36 **EXPOSURE button** (p. 43)

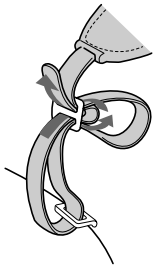
37 **SEL/PUSH EXEC dial** (p. 55)

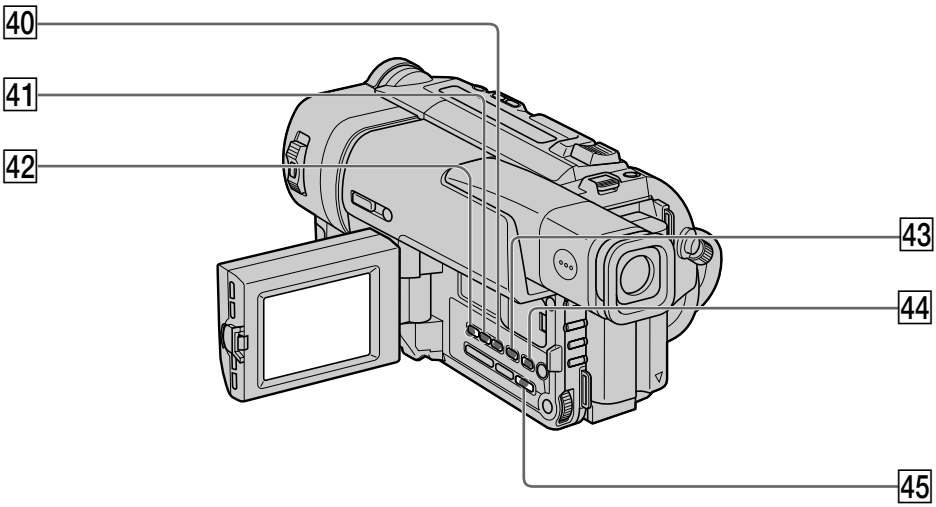
38 **MENU button** (p. 55)

39 **PICTURE EFFECT button** (p. 37)

Attaching the shoulder strap

Attach the shoulder strap supplied with your camcorder to the hooks for the shoulder strap.





40 **COUNTER RESET button** (p. 17)

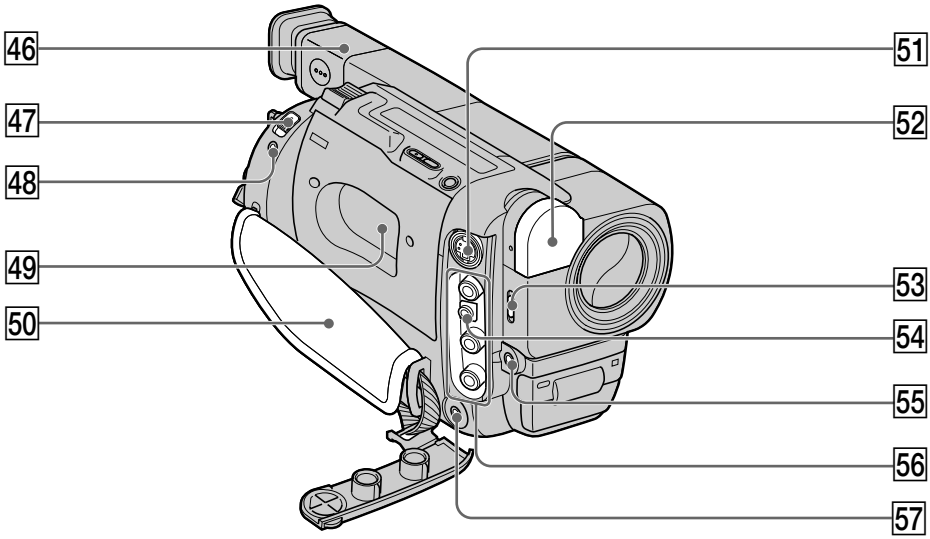
41 **TIME button** (p. 22)

42 **DATE button** (p. 22)

43 **DISPLAY button** (p. 25)

44 **END SEARCH button** (p. 23)

45 **TITLE button** (p. 45)



46 **Viewfinder** (p. 5)

47 **EJECT switch** (p. 15)

48 **LANC control jack**
LANC stands for Local Application Control Bus System. The control jack is used for controlling the tape transport of video equipment and other peripherals connected to the video equipment. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

49 **Cassette compartment** (p. 15)

50 **Grip strap**

51 **S VIDEO jack** (CCD-TRV67/TRV87 only) (p. 27)

52 **Built-in light** (p. 49)

53 **LIGHT switch** (p. 49)

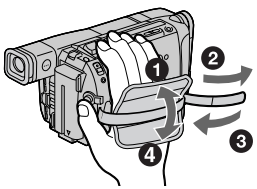
54 **RFU DC OUT (RFU adaptor DC output) jack** (p. 28)

55 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.
If you connect a 2-pin microphone, supply power from DC OUT jack.
In this case, WIND in the menu settings does not function. (CCD-TRV87 only)

56 **AUDIO/VIDEO jacks** (p. 27)

57 **(headphones) jack** (CCD-TRV87 only)**/ (earphone) jack** (CCD-TRV17/TRV37/TRV57/TRV67 only)
When you use headphones(CCD-TRV87 only)/earphone (CCD-TRV17/TRV37/TRV57/TRV67 only), the speaker on your camcorder is silent.

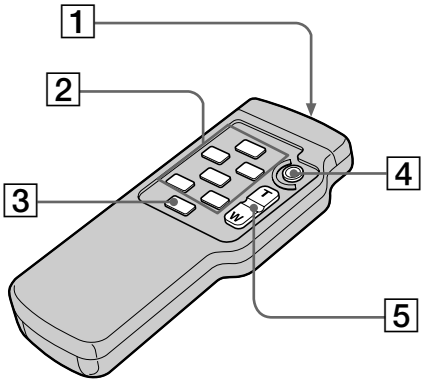
Fastening the grip strap
Fasten the grip strap firmly.



Remote Commander

– CCD-TRV57/TRV67/TRV87 only

The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.



1 **Transmitter**
Point toward the remote sensor to control your camcorder after turning on your camcorder.

2 **Video control buttons** (p. 26)

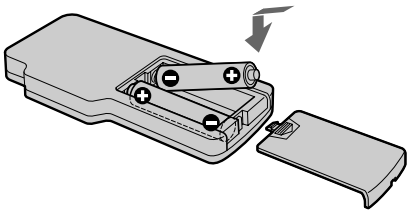
3 **DISPLAY button** (p. 25)

4 **START/STOP button** (p. 16)

5 **Power zoom button** (p. 18)

To prepare the Remote Commander

Insert 2 size AA (R6) batteries by matching the + and – polarities on the batteries to the + – marks inside the battery compartment.

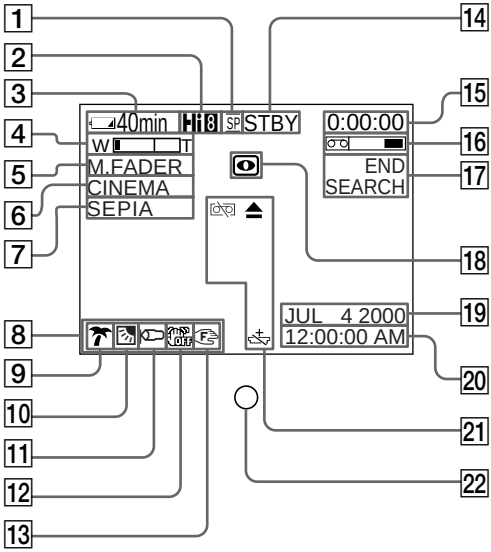


Notes on the Remote Commander

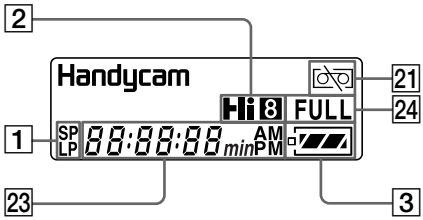
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Operation indicators

LCD screen and Viewfinder



Display window



1 **Recording mode indicator** (p. 58)**/ Mirror mode indicator** (p. 17)

2 **Hi8 format indicator** (CCD-TRV67/ TRV87 only) (p. 20, 63)

3 **Remaining battery time indicator** (p. 20)

4 **Exposure indicator** (p. 43)**/Zoom indicator** (p. 18)

5 **Fader indicator** (p. 35)**/Digital effect indicator** (CCD-TRV87 only) (p. 39)

6 **Wide mode indicator** (p. 32)

7 **Picture effect indicator** (p. 37)

8 **LCD bright indicator** (p. 17)**/Volume indicator** (p. 24)

9 **PROGRAM AE indicator** (p. 41)

10 **Backlight indicator** (p. 20)

11 **Wind indicator** (CCD-TRV87 only) (p. 56)

12 **SteadyShot off indicator** (CCD-TRV57/TRV67/TRV87 only) (p. 57)

13 **Manual focusing indicator** (p. 44)

14 **STBY/REC indicator** (p. 20)**/ Video control mode indicator** (p. 26)

15 **Tape counter indicator** (p. 20)**/Self-diagnosis display indicator** (p. 70)**/ Photo mode indicator** (CCD-TRV87 only) (p. 30)

16 **Remaining tape indicator** (p. 20)

17 **END SEARCH indicator** (p. 23)

18 **NIGHTSHOT indicator** (p. 21)

19 **AUTO DATE indicator** (p. 62)**/Date indicator** (p. 22, 62)

20 **Time indicator** (p. 22, 62)

21 **Warning indicators** (p. 71)

22 **Recording lamp** (p. 16)

23 **Date or time indicator** (p. 22, 62)**/ Tape counter indicator** (p. 20)**/ Self-diagnosis display indicator** (p. 70)**/Remaining battery time indicator** (p. 10)

24 **FULL charge indicator** (p. 10)

Quick Function Guide

Functions to adjust exposure (in the recording mode)

• In a dark place	NIGHTSHOT (p. 21)
• In insufficient light	Low lux mode (CCD-TRV87 only) (p.41)
• In dark environments such as sunset, fireworks, or general night views	Sunset&moon mode (p.41)
• Shooting backlit subjects	BACK LIGHT (p. 20)
• In spotlight, such as at the theater or a formal event	Spotlight mode (p.41)
• In strong light or reflected light, such as at a beach in midsummer or on a ski slope	Beach&ski mode (p.41)

Functions to give images more impact (in the recording mode)

• Smooth transition between scenes	FADER (p. 34)
• Taking a still picture	PHOTO (CCD-TRV87 only) (p.30)
• Digital processing of images	PICTURE EFFECT (p. 37) / DIGITAL EFFECT (CCD-TRV87 only) (p.38)
• Creating a soft background for subjects	Soft portrait mode (p.41)
• Superimposing a title	TITLE (p. 45)

Functions to give a natural appearance to your recordings (in the recording mode)

• Preventing deterioration of picture quality in digital zoom	D ZOOM [MENU] (p. 55)
• Focusing manually	Manual focus (p.44)
• Reducing wind noise	WIND [MENU] (CCD-TRV87 only) (p.55)
• Shooting distant subjects	Landscape mode (p.41)
• Recording fast-moving subjects	Sports lesson mode (p.41)

Functions to use in editing (in the recording mode)

• Watching the picture on a wide-screen TV	Wide mode (p.32)
• Playing back the picture on a TV without connecting a cord	SUPER LASER LINK (CCD-TRV87 only) (p.28)
• Recording with the date/time	Date and time (p.22)
• Enhancing old tapes	ORC [MENU] (p. 55)

Functions to use after recording (in the playback mode)

• Playing back on monaural sound or sub sound	HiFi SOUND [MENU] (CCD-TRV87 only) (p.55)
• Correcting jitter	TBC [MENU] (p. 55)
• Correcting color noise	DNR [MENU] (p. 55)

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